A Database Publication

electron user

Vol. 6 No. 9 June 1989 £1.25

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10 educational games for the Electron for just £5.95

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Fun School 2 for 6 to 8 year olds contains:

- **Number train:** Calculations made enjoyable
- **Shopping:** Which shops for which products?
- **Maths Maze:** Fun improving arithmetical skills
- **Treasure Hunt:** Introduction to coordinates
- **Bounce:** Get to grips with angles
- **Packing:** Discover tesselating shapes
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Fun School 2 for Under-6s contains:

- **Shape Snap:** Colourful shape recognition
- **Find the Mole:** Experiment with number sizes
- **Teddy Count:** Ideal introduction to numbers
- **Write a Letter:** Creative fun at the keyboard
- **Colour Train:** Play at spotting colours
- **Pick a Letter:** Word building made easy
- **Spell a Word:** Enjoy naming the pictures
- **Teddy Bears Picnic:** Move around a maze

Now children can really have fun while learning. Fun School 2, designed by a team of educationalists, is available for three age groups: Under-6s, 6-8 year olds and Over-8s. Each pack comes with eight colourful and exciting programs, a colourful button badge and detailed instructions giving educational help.

The computer itself monitors the child's progress. The skill level – initially set by parents – is automatically adjusted to suit the child's ability.

Now children can enjoy using their parents' computer while they learn at their own pace.

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Spectrum, Commodore 64, Amstrad CPC, BBC Micro/Electron £9.95 (tape) £12.95 (disc).

Also: Atari ST, Amiga, PC £19.95 (PC version released in May)

DATABASE EDUCATIONAL SOFTWARE

Format	Under-6s		6-8 years		Over-8s	
	Tape	Disc	Tape	Disc	Tape	Disc
Spectrum	9094	9095	9096	9097	9098	9099
Commodore 64	9064	9065	9066	9067	9068	9069
Amstrad CPC	6179	6180	6181	6182	6183	6184
BBC Micro/Electron	2239		2242		2245	
BBC B+/Master 40T		2240		2243		2249
BBC B+/Master 80T		2241		2244		2250
Atari ST		9192		9193		9194
Amiga		9842		9843		9844
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Please supply Fun School 2 for the code number(s) circled

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electron user NEWS

BEEFY star Arnold Schwarzenegger comes to the Electron on June 1 when Superior Software brings out its new game Predator. With the conversion carried out by Peter Scott of Last Ninja fame, it should be well received. Price, £9.95.

Electrons can help Oxfam

ELECTRON users have been called on to help combat the scourges of famine, war and illness in the developing world.

Oxfam has made a special appeal for donations of spare software, peripherals or hardware with a target of £20,000 to help its work around the world.

"We would be particularly pleased to receive Electron software since there is such a faithful following for this machine", said Oxfam's appeals manager Richard English.

"Software programs for the Electron are not so numerous as for some other machines, and could be looked upon by some people as collectors' items. We would be able to sell them on well to help our work".

Oxfam is the UK's leading international voluntary agency, with a chain of more than 900 shops nationwide.

"I can assure anyone making a donation that it will be put to good use", said Richard English. "Poor communities will have desperately needed clean water, tools and seeds – the means to free themselves from hunger".

Anyone with software to donate can take it along to their local Oxfam shop or send it to the London HQ at 59 St Johns Hill, Clapham Junction, SW11 1VJ.

Software firms join forces to boost games

THE UK's top entertainment software houses have joined forces to boost the popularity of computer games and to wage war on software piracy.

Officially launched at the European Computer Trade Show, the Entertainment Software Publishers Association aims to improve the environment for the games software industry by developing and promoting cooperation among competing companies.

Not only will these changes be aimed at the industry but they will also have an impact on the games-playing public through the media.

The new body will forge close links with FAST, the Federation Against Software Theft. It was conceived by independent consultant Simon Treasure and is chaired by head of software house Hewson, Andrew Hewson.

Pictured at the launch of the Entertainment Software Publishers Association are from left to right, Simon Treasure, Cheryl Davis of Washington DC who is membership secretary of the Software Publishers Association of America, and the first chairman of the ESPA, Andrew Hewson

One problem surrounds the choice of name. The initials ESPA are already used by an educational body.

Sam's still playing well

THE ubiquitous Sam is playing it yet again for Superior Software (0532 459453), bringing a couple of new games for the Electron.

Leeds-based Superior has stuck to its tried and tested compilation formula to bring Electron users Play It Again Sam 8 and 9. Sam 10 is due on June 8.

Will number 10 be the end of the line for Sam? Brothers Richard and Steve Hanson have made no decision on that yet, so it seems possible that Sam could play on and on and on . . .

The four game line-up for Sam 8 includes Tynesoft's hit Winter Olympiad '88 with bob-sled, speed skating, ski jump, giant slalom and biathlon.

Quest has more than 90 screens full of tantalising puzzles and curious adversaries.

Around the World in 40 Screens features Repton action in Africa, the Arctic, the Orient, America and the Oceans and completing the collection is Superior's arcade classic Mr Wiz.

Sam 9 leads off with new game Camelot, the follow-up to Quest. This is particularly goods news for Electron owners, since it comes from writer Tony Oakden who reverses the usual process by programming on the Electron and converting to BBC Micro afterwards.

Two Superior successes, the Spy Catcher spoof Spy Cat and the Life of Repton are joined by Steve Davis Snooker to complete the Sam 9 line-up.

Sam 10 will see another new Electron game Qwak, an advanced ladder and platform offering from new young writer Jamie Woodhouse. Lead game is the old favourite Zalaga which came out top of the pops in a recent market research carried out by Superior. They are joined by Repton Thru' Time and former Blue Ribbon title 3D-Dotty.

Each compilation sells for £9.95.

FEATURED in last month's *Electron User* was Rodeo Games, the latest offering from Tynesoft (091-414 4611). Now here's a taste of the graphics for this follow-up to the popular Circus Games.

Rodeo Games features bronco riding, steer wrestling, calf roping, trick shooting and knife throwing. It costs £9.95 for cassette and £14.95 on disc.

Gallup Software Chart

THIS MONTH	LAST MONTH	TITLE (Software House)	COMMENTS	PRICE
1	•	STORMCYCLE *Atlantis*	A chance to save the Earth from imminent invasion and disaster. You must find five diodes, kill the enemy and beat the clock.	1.99
2	▽1	SMASH & GRAB *Blue Ribbon*	If you're feeling especially villainous and dastardly you can break the law in this budget title. Playable and addictive.	1.99
3	▽2	TRIPLE DECKER *Alternative*	These games were originally listings in *Electron User*. There can be no argument about their value for money.	1.99
4	△12	JOE BLADE *Players*	The original mission for the community conscious Joe. You don't need to buy Joe Blade 2 to enjoy this arcade adventure.	1.99
5	•	FOOTBALLER OF THE YEAR *Kixx*	Orginally from Gremlin Graphics and now a budget release. A good challenge but probably only for football enthusiasts.	1.99
6	△13	REPTON 2 *Blue Ribbon*	Not often seen on its own since its original release. If you like completeness then this should certainly be added to your collection.	2.99
7	▽4	JOE BLADE 2 *Players*	The graphics are good and the game very playable. The puzzle screens are difficult and this superb sequel will keep you busy for hours.	1.99
8	•	DEATH STAR *Blue Ribbon*	New to the budget market, this transports you to another planet on a rescue mission. Good shoot-'em-up. Fast moving and compulsive.	1.99
9	△16	COMMANDO *Encore*	This should be added to your collection immediately. A shoot-'em-up which is everything you would expect.	2.99
10	•	LAST NINJA *Superior*	Well packaged and attractively presented. The only full-priced game in the chart provides nice graphics and enjoyable gameplay.	9.95
11	▽10	GRAHAM GOOCH TEST CRICKET *Alternative*	Originally released last year by ASL, it is more suited to its budget price. Only recommended if you can't wait for good weather.	1.99
12	△15	KARATE COMBAT *Blue Ribbon*	As with sports simulations, martial arts never die. This is a better than average implementation and good armchair excercise.	2.99
13	•	FRANKENSTEIN 2000 *Atlantis*	Back in the charts after its long sojourn at number one. An interesting mix of Inner Space and Fantastic Voyage.	1.99
14	•	REPTON *Blue Ribbon*	The first setting for the little green friend. If you didn't acquired this originally or in its various forms since – do so now.	2.99
15	▽9	THRUST *Firebird*	An old favourite which is deceptively simple. Thrust has been keeping people glued to their screens for years. Skillful manoeuvring required.	1.99
16	•	MINI OFFICE *Alternative*	The only non-games title in the charts and now released on a budget label. Features word processor, database and spreadsheet.	2.99
17	•	STEVE DAVIS SNOOKER *Blue Ribbon*	Sports are well represented this month and this is a classic. Destined to remain a best seller as long as Steve continues winning.	1.99
18	▽3	RAVENSKULL *Blue Ribbon*	An excellent arcade adventure which was superb on its original label. At this price it has to be a bargain.	2.99
19	•	CREEPY CAVE *Atlantis*	A strange place to lose your keys, but stranger things have happened. Fun, colourful and enjoyable romp.	1.99
20	•	GRAND PRIX *Alternative*	If you fancy your chances as a racing driver this is a safe way to try your skills, though nothing particulary new.	1.99

The Yuppy Electron

Richard Blythe's handy database enables you to store and retrieve information with ease

WE all use databases every day of our lives, perhaps without realising it. They are an essential aid for storing and recalling information like facts and figures, names and addresses, telephone numbers, records, tapes and so on.

Manual systems like a card index are reliable, but very slow when it comes to finding a simple fact in a large array of cards and sorting them into order. A computerised system offers many advantages, not the least speed of access and compactness.

This listing turns the Electron into a powerful electronic card index system, allowing you to design and create a personalised menu-driven database, specifying its size, the information to be held and how it is indexed and presented on screen. The only requirement is a disc drive, either DFS or ADFS.

When run the program presents you with the menu screen in Figure I on which an option can be highlighted using the up and down cursor keys and selected by pressing the Return key.

On choosing the Create a database option – making sure there is a disc in the drive – you'll see a screen similar to Figure II where you can design the structure of each card in the index. The number of records (cards) and fields (subheadings) are set and you can name each field and specify its length.

Once this is done you can open the database and start filling in the cards. Figure III shows the menu screen on opening a file called Phone Book. Here are options for adding, altering and deleting records, printing the whole file and searching for a particular item.

On selecting Add a record you are prompted to enter the data into each of the fields defined and the Search option is used to examine the records. Figure IV shows the result of searching the example Phone Book file for a surname.

Notice that you don't need to enter the full text of the field or the first item, as substrings are found. In some cases there may be more than one match of the search item and pressing the spacebar takes you to the next one.

When finished with the database don't forget to close the file from the main menu to ensure that all the changes are written to disc.

So now you can throw away all your old manual card index files and bring them up to date with a powerful and flexible computerised one.

```
  10 REM Random Access Database
  20 REM By Richard Blythe
  30 REM (c) Electron User
  40 MODE 4:VDU 23,1,0;0;0;0;
  50 PROCinit
  60 ON ERROR PROCerr
  70 REPEAT:*FX200,1
  80 VDU 26
  90 PROCcls
 100 PROCmenu
 110 fin%=EVAL("FNjob"+STR$opt%)
 120 UNTIL fin%=1
 130 MODE 6:PRINT':*FX4
 140 *FX200
 150 END
 160 :
 170 DEF PROCerr:IF ERR=17 ENDPR
OC
 180 VDU 26
 190 COLOUR 128:COLOUR 1:CLS
 200 PRINT':REPORT:PRINT" at lin
e ";ERL
 210 CLOSE#0
 220 *FX4
 230 *FX200
 240 END
 250 :
 260 DEF PROCinit
 270 B%=4:C%=2:menu%=0
 280 VDU 19,0,B%;0;19,1,C%;0;
 290 DIM f$(10),f%(10)
 300 VDU 23,224,0,0,255,0,0,255,
0,0
 310 VDU 23,225,36,36,36,36,36,3
6,36,36
 320 VDU 23,226,0,0,63,32,32,39,
36,36
 330 VDU 23,227,0,0,252,4,4,228,
36,36
```

Turn to Page 8 ►

Figure I: The opening menu

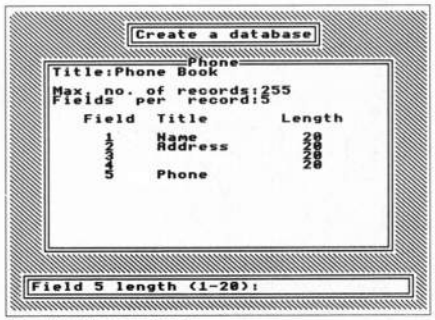

Figure II: Creating a new database

◀ *From Page 7*

```
 340 VDU 23,228,36,36,39,32,32,6
3,0,0
 350 VDU 23,229,36,36,228,4,4,25
2,0,0
 360 DIM m$(10):*FX4,1
 370 FOR i%=0 TO 2 STEP 2
 380 ad=&70:P%=&900
 390 [OPT i%
 400 .st EQUW 0
 410 .fi EQUW 0
 420 .cou EQUB 0
 430 .ad2 EQUW0
 440 .co2 EQUB0
 450 .cls
 460 LDA st:STA ad2
 470 LDA st+1:STA ad2+1
 480 .beg
 490 LDA ad2:STA ad
 500 LDA ad2+1:STA ad+1
 510 LDA cou:STA co2
 520 .lp
 530 LDY #7
 540 .lp2 LDA tbl,Y:STA(ad),Y
 550 DEY:CPY #255:BNE lp2
 560 CLC
 570 LDA ad:ADC #8:STA ad
 580 LDA ad+1:ADC #0:STA ad+1
 590 DEC co2:BNE lp
 600 CLC
 610 LDA ad2:ADC #&40:STA ad2
 620 LDA ad2+1:ADC #1:STA ad2+1
 630 CMP fi+1:BNE beg
 640 LDA ad2:CMP fi:BNE beg
 650 RTS
 660 .tbl
 670 EQUD &11224488
 680 EQUD &11224488
 690 ]
 700 NEXT
 710 ENDPROC
 720 :
 730 DEF PROCcls
 740 LOCAL l%,r%,b%,t%,st%,fi%,c
ou%
 750 l%=?&308:r%=?&30A
 760 b%=?&309:t%=?&30B
 770 st%=&5800+(t%*&140)+(l%*8)
 780 fi%=&5940+(b%*&140)+(l%*8)
 790 cou%=1+(r%-l%)
 800 ?st=st% MOD 256
 810 st?1=st% DIV 256
 820 ?fi=fi% MOD 256
 830 fi?1=fi% DIV 256
 840 ?cou=cou% MOD 256
 850 cou?1=cou% DIV 256
 860 CALL cls
 870 ENDPROC
 880 :
 890 DATA &80,&9,0,32,126
 900 :
 910 DEF PROCtitle(t$)
 920 PROCstore
 930 VDU 28,0,3,39,1
 940 PROCcls
 950 PROCcen(t$,2,1)
 960 PROCrestore
 970 ENDPROC
 980 :
 990 DEFPROCcen(a$,y%,b%)
1000 LOCAL x%
1010 x%=20-(LEN(a$)DIV2)
1020 IF b%=1 PROCbox(x%-1,y%+1,x
%+LEN(a$),y%-1,""):VDU 26
1030 PRINT TAB(x%,y%);a$
1040 ENDPROC
1050 :
1060 DEF FNprompt(a$,l%)
1070 LOCAL i%,a%
1080 PROCstore
1090 PROCbox(1,30,38,28,"")
1100 PRINT TAB(1,1);a$;
1110 VDU 23,1,1;0;0;0;
1120 A%=0:X%=&78:Y%=0
1130 RESTORE 890
1140 FOR i%=0 TO 4
1150 READ a%
1160 i%?&78=a%
1170 NEXT
1180 ?&7A=l%
1190 CALL&FFF1
1200 VDU 23,1,0;0;0;0;
1210 PROCcls
1220 PROCrestore
1230 =$&980
1240 :
1250 DEF FNnum(a$,l%,h%)
1260 LOCAL n$
1270 REPEAT
1280 n$=FNprompt(a$,LEN(STR$(h%)
))
1290 UNTIL VAL(n$)>=l% AND VAL(n
$)<=h%
1300 =VAL(n$)
1310 :
1320 DEF PROCstore
1330 !&72=!&308:?&76=POS:?&77=VP
OS
1340 ENDPROC
1350 :
1360 DEF PROCrestore
1370 VDU 28,?&72,?&73,?&74,?&75,
31,?&76,?&77
1380 ENDPROC
1390 :
1400 DEF PROCbox(l%,b%,r%,t%,t$)
1410 LOCAL i%,len%
1420 VDU 28,l%,b%,r%,t%,12,26
1430 len%=1+(r%-l%)
1440 PRINT TAB(l%,t%);STRING$(le
n%,CHR$224);TAB(l%,b%);STRING$(le
n%,CHR$224)
1450 FOR i%=t% TO b%
1460 VDU 31,l%,i%,225,31,r%,i%,2
25
1470 NEXT
1480 VDU 31,l%,t%,226,31,r%,t%,2
27,31,l%,b%,228,31,r%,b%,229
1490 VDU 28,l%,b%,r%,t%
1500 i%=(r%-l%)DIV2-(LENt$ DIV2)
1510 IF LEN(t$)MOD2=0 i%=i%+1
1520 PRINT TAB(i%,0);t$
1530 ENDPROC
1540 :
1550 DEF FNsure(y%)
1560 PROCcen("Are you sure?",y%,
1)
1570 REPEAT
1580 g$=CHR$(GET AND&5F)
1590 UNTIL INSTR("NY",g$)
1600 VDU 28,0,y%+1,39,y%-1
1610 PROCcls:VDU 26
1620 =INSTR("NY",g$)-1
1630 :
1640 DEF FNmenu(t$,n%)
1650 LOCAL max%,i%,o%:max%=0
1660 PROCstore
1670 FOR i%=1 TO n%
1680 READ m$(i%)
1690 IF LEN m$(i%)>max% max%=LEN
m$(i%)
1700 NEXT
1710 o%=20-((max%+2)DIV2)
1720 PROCbox(o%,n%+6,o%+max%+1,5
,t$)
1730 FOR i%=1 TO n%
1740 PRINT TAB(1,i%);m$(i%)
1750 NEXT
1760 o%=1
1770 REPEAT
1780 PROCbar(o%,1)
1790 g%=GET
1800 PROCbar(o%,0)
1810 IF g%=139 o%=o%-1
1820 IF g%=138 o%=o%+1
1830 IF o%<1 o%=n% ELSE IF o%>n%
o%=1
1840 UNTIL g%=13
1850 PROCcls
1860 PROCrestore
1870 =o%
1880 :
1890 DEF PROCbar(n%,c%)
1900 IF c%=1 COLOUR 129:COLOUR 0
1910 IF c%=0 COLOUR 128:COLOUR 1
1920 PRINT TAB(1,n%);m$(n%);SPC(
max%-LEN(m$(n%)));
1930 ENDPROC
1940 :
1950 DEF FNlng(s$,l%)
1960 =s$+STRING$((l%-LEN(s$),CHR$
0)
1970 :
1980 DEF PROCps(s$)
1990 LOCAL i%
2000 FOR i%=1 TO LEN(s$)
2010 BPUT#F%,ASC(MID$(s$,i%,1))
2020 NEXT
2030 ENDPROC
2040 :
2050 DEF FNgs(l%)
2060 LOCAL s$,i%:s$=""
2070 FOR i%=1 TO l%
2080 s$=s$+CHR$(BGET#F%)
2090 NEXT
2100 IF INSTR(s$,CHR$0)=0 =s$ EL
SE =LEFT$(s$,INSTR(s$,CHR$0)-1)
2110 :
2120 DATA Create a database,Open
 a database,Change colours,Star c
ommand,Exit Data Base
2130 DATA Add a record,Alter a r
ecord,Delete a record,List the fi
le,Search the file,Wipe the file,
Close file
2140 :
2150 DEF PROCmenu
2160 LOCAL i%,n%
2170 COLOUR 128:COLOUR 1
```

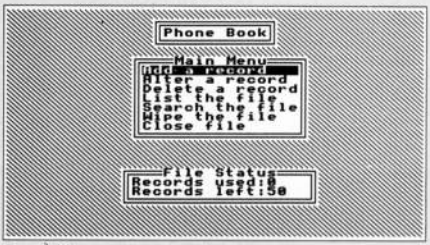

Figure III: The menu screen on opening a database called Phone Book

Figure IV: Searching for a database file

```
 2180 IF menu%=0 title$="Data Bas
e"
 2190 PROCtitle(title$)
 2200 IF menu%=0 RESTORE 2120:n%=
5
 2210 IF menu%=1 RESTORE 2130:n%=
7:PROCbox(11,20,29,17,"File Statu
s")
 2220 IF menu%=1 PRINT TAB(1,1);"
Records used:";ptr%;TAB(1,2);"Rec
ords left:";max%-ptr%
 2230 opt%=FNmenu("Main Menu",n%)
+(menu%*5)
 2240 IF menu%=1 PROCcls:VDU 26
 2250 PROCtitle(m$(opt%-(menu%*5)
))
 2260 ENDPROC
 2270 :
 2280 DEF FNjob5
 2290 =FNsure(15)
 2300 :
 2310 DATA Black,Red,Green,Yellow
,Dark Blue,Purple,Light Blue,Whit
e
 2320 :
 2330 DEF FNjob3
 2340 RESTORE 2310
 2350 C%=FNmenu("Foreground",8)-1
 2360 VDU 19,1,C%;0;:RESTORE2310
 2370 B%=FNmenu("Background",8)-1
 2380 VDU 19,0,B%;0;
 2390 =0
 2400 :
 2410 DEF FNjob4
 2420 LOCAL com$:VDU 14
 2430 PROCbox(5,7,34,4,"")
 2440 PRINT TAB(1,1);"Press SHIFT
 to scroll screen";
 2450 PRINT TAB(4,2);"and just RE
TURN to end"
 2460 PROCbox(9,25,30,9,"")
 2470 VDU28,10,24,29,10
 2480 REPEAT
 2490 com$=FNprompt("*",35)
 2500 IF com$="" UNTIL 1:VDU 15:=
0
 2510 PRINT ' "*";com$
 2520 OSCLI"*"+com$
 2530 UNTIL 0
 2540 =0
 2550 :
 2560 DEF FNlng(s$,l%)
 2570 =s$+STRING$(l%-LEN(s$),CHR$
0)
 2580 :
 2590 DEF FNjob1
 2600 LOCAL fn$,title$,max%,fld%,
len%,i%,d%
 2610 REPEAT
 2620 fn$=FNprompt("Disc filename
:",10)
 2630 IF fn$="" UNTIL 1:=0
 2640 F%=OPENINfn$
 2650 CLOSE#F%
 2660 UNTIL F%=0
 2670 PROCbox(3,25,36,5,fn$)
 2680 VDU 28,4,24,35,6
 2690 title$=FNprompt("Title:",20
)
 2700 PRINT "Title:";title$'
 2710 max%=FNnum("Max. no. of rec
ords (1-255):",1,255)
 2720 PRINT"Max. no. of records:"
;max%
 2730 fld%=FNnum("No. of fields p
er record (1-10):",1,10)
 2740 PRINT"Fields per record:"
;fld%
 2750 PRINT TAB(3,5);"Field  Titl
e";SPC7;"Length"
 2760 PRINT
 2770 FOR i%=1 TO fld%
 2780 PRINT TAB(5,6+i%);i%
 2790 f$(i%)=FNprompt("Field "+ST
R$(i%)+" title:",10)
 2800 PRINT TAB(10,6+i%);f$(i%)
 2810 f%(i%)=FNnum("Field "+STR$(
i%)+" length (1-20):",1,20)
 2820 PRINT TAB(24,6+i%);f%(i%)
 2830 NEXT
 2840 PROCcen("Please Wait",29,1)
 2850 title$=FNlng(title$,20)
 2860 len%=0
 2870 FOR i%=1 TO 10
 2880 f$(i%)=FNlng(f$(i%),10)
 2890 len%=len%+f%(i%)
 2900 NEXT
 2910 F%=OPENOUT fn$
 2920 PROCps("FiLe")
 2930 PROCps(title$)
 2940 BPUT#F%,fld%
 2950 BPUT#F%,len%
 2960 BPUT#F%,max%
 2970 BPUT#F%,0
 2980 FOR i%=1 TO 10
 2990 BPUT#F%,f%(i%)
 3000 NEXT
 3010 FOR i%=1 TO 10
```

```
 3020 PROCps(f$(i%))
 3030 NEXT
 3040 PTR#F%=138+(len%*max%)
 3050 CLOSE#F%
 3060 =0
 3070 :
 3080 DEF FNjob2
 3090 LOCAL i%
 3100 REPEAT
 3110 fn$=FNprompt("Filename:",10
)
 3120 IF fn$="" UNTIL 1:=0
 3130 F%=OPENUPfn$
 3140 UNTIL F%<>0
 3150 IF FNgs(4)<>"FiLe" PROCcen(
"Not a DataBase file",6,1):CLOSE#
F%:F%=TIME:REPEAT UNTIL TIME-F%>1
00:GOTO 3100
 3160 title$=FNgs(20)
 3170 fld%=BGET#F%
 3180 len%=BGET#F%
 3190 max%=BGET#F%
 3200 ptr%=BGET#F%
 3210 FOR i%=1 TO 10
 3220 f%(i%)=BGET#F%
 3230 NEXT
 3240 FOR i%=1 TO 10
 3250 f$(i%)=FNgs(10)
 3260 NEXT
 3270 menu%=1:=0
 3280 :
 3290 DEF PROCborder(ptr%)
 3300 LOCAL w%,h%,i%
 3310 w%=0
 3320 FOR i%=1 TO 10
 3330 IF f%(i%)>w% w%=f%(i%)
 3340 NEXT
 3350 w%=w%+13:h%=fld%+2
 3360 PROCbox(20-(wXDIV2),4+h%,(1
9-(wXDIV2))+w%,5,"Record "+STR$(p
tr%+1))
 3370 ENDPROC
 3380 :
 3390 DEF PROCrecord(n%)
 3400 LOCAL i%
 3410 PROCborder(n%)
 3420 FOR i%=1 TO fld%
 3430 PRINT TAB(1,i%);f$(i%);TAB(
11,i%);":";m$(i%)
 3440 NEXT
 3450 ENDPROC
 3460 :
 3470 DEF FNjob6
 3480 LOCAL i%,g$
 3490 IF ptr%>=max% PROCcen("Data
base full",6,1):TIME=0:REPEAT UNT
IL TIME>100:VDU 26:PROCcls:=0
 3500 PROCborder(ptr%)
 3510 FOR i%=1 TO fld%
 3520 PRINT TAB(1,i%);f$(i%);TAB(
11,i%);":"
 3530 NEXT
 3540 FOR i%=1 TO fld%
 3550 m$(i%)=FNprompt(f$(i%)+":",
f%(i%))
 3560 m$(i%)=FNlng(m$(i%),f%(i%))
 3570 PRINT TAB(12,i%);m$(i%)
 3580 NEXT
 3590 PTR#F%=138+(ptr%*len%)
 3600 FOR i%=1 TO fld%
 3610 PROCps(m$(i%))
 3620 NEXT
 3630 ptr%=ptr%+1
 3640 PROCcen("N for next entry,M
 for menu",29,1)
 3650 REPEAT
 3660 g$=CHR$(GET AND&5F)
 3670 UNTIL INSTR("NM",g$)
 3680 IF g$="N" GOTO 3490
 3690 =0
 3700 :
 3710 DEF FNjob9
 3720 LOCAL i%,j%,s%,f%,p%
 3730 IF ptr%=0 VDU7:=0
 3740 s%=FNnum("Begin at entry (1
-"+STR$(ptr%)+"):",1,ptr%)
 3750 f%=FNnum("Finish at entry (
"+STR$(s%)+"-"+STR$(ptr%)+"):",s%
,ptr%)
 3760 PROCcen("Output to printer?
(Y/N)",29,1)
 3770 REPEAT
 3780 g$=CHR$(GET AND&5F)
 3790 UNTIL INSTR("YN",g$)
 3800 IF g$="N" p%=0 ELSE p%=1
 3810 VDU 28,0,30,39,28
 3820 PROCcls:VDU 26
 3830 PROCcen("Press SPACE bar",2
9,1)
 3840 PTR#F%=138+((s%-1)*len%)
 3850 FOR i%=s%-1 TO f%-1
 3860 FOR j%=1 TO fld%
 3870 m$(j%)=FNgs(f%(j%))
 3880 NEXT
 3890 PROCrecord(i%)
 3900 IF p% PROCprint(i%)
 3910 REPEAT UNTIL GET=32
 3920 NEXT:=0
 3930 :
 3940 DEF FNjob12
 3950 IF FNsure(15)=0 =0
 3960 PTR#F%=27:BPUT#F%,ptr%
 3970 CLOSE#F%
```

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◀ *From Page 9*

```
 3980 menu%=0:=0
 3990 :
 4000 DEF FNjob7
 4010 LOCAL r%,i%,g$,n$,l%
 4020 IF ptr%=0 VDU 7:=0
 4030 r%=FNnum("Alter record no.
(1-"+STR$(ptr%)+"):",1,ptr%)
 4040 r%=r%-1
 4050 REPEAT
 4060 PTR#f%=138+(r%*len%)
 4070 FOR i%=1 TO fld%
 4080 m$(i%)=FNgs(f%(i%))
 4090 NEXT
 4100 PROCrecord(r%)
 4110 PTR#f%=138+(r%*len%)
 4120 FOR i%=1 TO fld%
 4130 PROCcen("Is the "+f$(i%)+"
correct? (Y/N)",29,1)
 4140 REPEAT
 4150 g$=CHR$(GET AND&5F)
 4160 UNTIL INSTR("YN",g$)
 4170 VDU 28,0,30,39,28
 4180 PROCcls:VDU 26
 4190 i$=m$(i%)
 4200 IF g$="N" i$=FNprompt(f$(i%
)+":",f%(i%))
 4210 m$(i%)=FNlng(i$,f%(i%))
 4220 PROCrecord(r%)
 4230 PROCps(m$(i%))
 4240 NEXT
 4250 PROCcen("Is the record corr
ect? (Y/N)",29,1)
 4260 REPEAT
 4270 g$=CHR$(GET AND &5F)
 4280 UNTIL INSTR("YN",g$)
 4290 IF g$="N" VDU28,0,30,39,28:
PROCcls:PROCborder(r%)
 4300 UNTIL g$="Y"
 4310 =0
 4320 :
 4330 DEF FNjob8
 4340 IF ptr%=0 VDU7:=0
 4350 LOCAL r%,i%,j%
 4360 r%=FNnum("Delete which reco
rd (1-"+STR$(ptr%)+") ",1,ptr%)
 4370 r%=r%-1
 4380 PROCborder(r%)
 4390 PTR#f%=138+(r%*len%)
 4400 FOR i%=1 TO fld%
 4410 PRINT TAB(1,i%);f$(i%);TAB(
11,i%);":";FNgs(f%(i%))
 4420 NEXT
 4430 IF FNsure(29)=0 PROCcls:=0
 4440 PROCcen("Please Wait",29,1)
 4450 FOR i%=r%+1 TO ptr%-1
 4460 PTR#f%=138+(i%*len%)
 4470 FOR j%=1 TO fld%
 4480 m$(j%)=FNgs(f%(j%))
 4490 NEXT
 4500 PTR#f%=138+((i%-1)*len%)
 4510 FOR j%=1 TO fld%
 4520 PROCps(FNlng(m$(j%),f%(j%))
)
 4530 NEXT
 4540 NEXT
 4550 FOR j%=1 TO fld%
 4560 PROCps(FNlng("",f%(j%)))
 4570 NEXT
 4580 ptr%=ptr%-1:=0
 4590 :
 4600 DEF FNjob11
 4610 IF ptr%=0 VDU7:=0
 4620 LOCAL i%,j%
 4630 IF FNsure(7)=1 ptr%=0
 4640 =0
 4650 :
 4660 DEF FNjob10
 4670 IF ptr%=0 VDU7:=0
 4680 LOCAL i%,r%,j%,s$,g$,f%,p%
 4690 PROCbox(13,fld%+6,27,5,"")
 4700 FOR i%=1 TO fld%
 4710 PRINT TAB(1,i%);i%;":";TAB(
3,i%);f$(i%)
 4720 NEXT
 4730 r%=FNnum("Search which fiel
d (1-"+STR$(fld%)+"):",1,fld%)
 4740 PROCcls:i%=(f%(r%)+13)/2
 4750 PROCbox(20-i%,23,20+i%,21,"
Search")
 4760 PRINTTAB(1,1);f$(r%);TAB(11
,1);":"
 4770 s$=FNprompt("Search for:",f
%(r%))
 4780 PRINT TAB(12,1);s$
 4790 PROCcen("Output to printer?
(Y/N)",29,1)
 4800 REPEAT
 4810 g$=CHR$(GET AND&5F)
 4820 UNTIL INSTR("YN",g$)
 4830 IF g$="N" p%=0 ELSE p%=1
 4840 PTR#f%=138:PROCcen("Press S
PACE for next match",29,1)
 4850 f%=0
 4860 FOR i%=0 TO ptr%-1
 4870 FOR j%=1 TO fld%
 4880 m$(j%)=FNgs(f%(j%))
 4890 NEXT
 4900 IF INSTR(m$(r%),s$) PROCrec
ord(i%):IFp% PROCprint(i%)
 4910 IF INSTR(m$(r%),s$) REPEAT
UNTIL GET=32:f%=1
 4920 NEXT
 4930 IF f%=0 PROCcen("No match f
ound - Press SPACE",26,1):REPEAT
UNTIL GET=32
 4940 =0
 4950 :
 4960 DEF PROCprint(r%)
 4970 LOCAL i%
 4980 *FX3,10
 4990 PRINT"Record ";r%+1
 5000 FOR i%=1 TO fld%
 5010 PRINT TAB(3);f$(i%);TAB(13)
;":";m$(i%)
 5020 NEXT
 5030 PRINT':*FX3
 5040 ENDPROC
```


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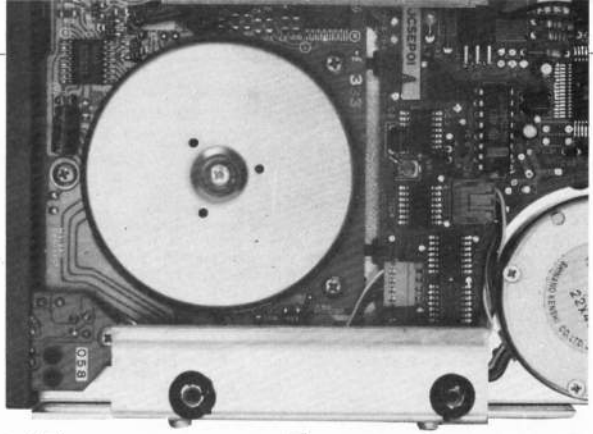

Accessing the OS

In Part 7 of his series unveiling the mysteries of the Electron's discs Roland Waddilove shows how to use osword calls for accessing the ADFS

WE have looked at a vast number of routines for accessing the ADFS and DFS disc systems in this series. In the past few articles I have been documenting the low level osword calls for accessing floppy discs and now I'll continue the theme with a look at ADFS osword calls.

Several fairly simple osword functions can be performed with the ADFS in the Plus 3 and AP3. The first we'll examine simply reads the amount of free space on the disc and is identical to the *FREE command you can type at the keyboard.

As always, osword requires a block of memory to return information. Before calling &FFF1 the X and Y registers must be set to point to the start of this block. The A register is set to &71 – the *FREE function number – and the osword routine is called.

The free space can be printed out after retrieving it from the parameter block. Program I shows how this call may be implemented in Basic.

Another straightforward operation is reading the master sequence number which is printed to the right of the title when you catalogue a disc. It is incremented every time you write information to the disc. It isn't, in fact, a great deal of use, but the call also reads a status byte that does provide useful information. This status byte is a bit-mapped number and the adjoining table shows what each bit represents.

Bit	Meaning
0	Not used
1	Bad free space map
2	*OPT1,x flag
3	Not used
4	Not used
5	Winchester controller present
6	Tube being used by ADFS
7	Tube present

Program II is used to read this information in Basic.

Finally this month we take a brief look at the osword &72 call which is used to perform fairly low level – in other words simple – disc operations. Program III will allow you to examine the contents of a disc by reading one sector at a time and displaying it on the screen in both hexadecimal and plain Ascii.

The osword call to read sectors requires a 10 byte parameter block. The first byte is used by the disc controller for reporting errors and should be set to zero. If, after the call, you find that it has been changed an error has occurred and the new value is the error number.

Parameter bytes one to four contain the address at which to load the data read from the sector. Byte five holds the osword &72 function code and if we store a value of eight here it instructs the disc controller to read sectors from the disc.

We store the disc address of the sector in bytes six, seven and eight. This is simply the sector number counting from the start of the

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```
   10 REM Read free space
   20 osword=&FFF1
   30 A%=&71
   40 X%=&70
   50 Y%=0
   60 CALL osword
   70 PRINT
   80 PRINT "There are ";!&70;"
bytes"
   90 PRINT "(";!&70 DIV 1024;"k)
 free on this disc."
```

Program I

```
   10 REM Read MSN
   20 osword=&FFF1
   30 A%=&70
   40 X%=&70
   50 Y%=0
   60 CALL osword
   70 PRINT
   80 PRINT "This disc has been"
   90 PRINT "written to ";~?&70;"
 times."
  100 PRINT
  110 IF ?&71 AND 2 PRINT "Bad fr
ee space map" ELSE PRINT "Free sp
ace map OK."
  120 PRINT
  130 IF ?&71 AND 4 PRINT "*OPT1,
1 in operation." ELSE PRINT "*OPT
1,0 in operation."
```

Program II

```
********** Disc Explorer **********

Disc address=&2 / Track=0 / Sector=2

-Byte-------Hexadecimal--------Ascii----
   0: 10 48 75 67 6F F0 F2 6F  .Hugo..o
   8: 67 31 0D 65 0D 6F 6E 00  g1.e.on.
  16: 1D FF FF 23 80 FF FF A1  ...#....
  24: 00 00 00 40 00 00 06 D0  ...@....
  32: D2 4F 47 32 0D 30 0D 69  .OG2.0.i
  40: 6E 00 1D FF FF 23 80 FF  n....#..
  48: FF 16 01 00 00 42 00 00  .....B..
  56: 05 D0 D2 4F 47 33 0D 30  ...OG3.0
  64: 30 30 30 00 1F FF FF 23  000....#
  72: 80 FF FF 85 04 00 00 44  .......D
  80: 00 00 10 5A 59 D3 79 73  ...ZY.ys
  88: 48 65 6C 70 0D 00 20 00  Help.. .
  96: 00 00 20 00 00 F0 38 00  .. ...8.
 104: 00 07 00 00 01 00 00 00  ........
 112: 00 00 00 00 00 00 00 00  ........
 120: 00 00 00 00 00 00 00 00  ........

        Press a key...
```

Displaying the ADFS directory

◀ *From Page 11*

disc. There are 16 sectors in every track, so the address of track two, sector three, would be 2*16+3, or 35. The address must be stored most significant byte first, least significant byte last in reverse 6502 fashion.

Parameter byte nine contains the number of sectors to read, and in our program, will be set to one. The last parameter, byte 10, isn't used, so is set to zero.

Run Program III and enter the hexadecimal disc address of the sector to examine. Enter zero to start with the first sector. The first 128 bytes are displayed, and are followed by the next 128 bytes when you press a key. You'll be asked whether you want to see the next sector on the disc – press Y or N here.

```
  10 REM Read ADFS sectors
  20 REM By R.A.Waddilove
  30 REM (c) Electron User
  40 MODE 6
  50 VDU 19,0,4;0;
  60 DIM buffer 256
  70 DIM block 16
  80 osword=&FFF1
  90 PROCtitle
 100 PRINT
 110 INPUT "Enter disc address:&
"da$
 120 IF da$="" da$="00"
 130 dadd=EVAL("&"+da$)
 140 REPEAT
 150 ?block=0 :REM error number
 160 block!1=buffer :REM load ad
dress
 170 block?5=8 :REM read command
 180 block?6=0 :REM disc address
 MSB 1st
 190 block?7=dadd DIV 256
 200 block?8=dadd MOD 256
 210 block?9=1 :REM 1 sector
 220 block?10=0 :REM unused
 230 A%=&72
 240 X%=block MOD 256
 250 Y%=block DIV 256
 260 CALL osword
 270 IF ?block>0 PRINT"Disc erro
r":END
 280 @%=&000904
 290 FOR K%=0 TO 128 STEP 128
 300 PROCtitle
 310 PRINT "Disc address=&";~dad
d;" / Track=";dadd DIV16;" / Sect
or=";dadd MOD16
 320 PRINT TAB(0,5)"-Byte-------
Hexadecimal--------Ascii----";
 330 FOR I%=0 TO 15*8 STEP 8
 340 a$=""
 350 PRINT I%+K%;":";
 360 FOR J%=0 TO 7
 370 byte=?(buffer+K%+I%+J%)
 380 IF byte<32 OR byte>126 a$=a
$+"." ELSE a$=a$+CHR$(byte)
 390 PRINT " ";~byte DIV 16;~byt
e MOD 16;
 400 NEXT
 410 PRINT "  ";a$
 420 NEXT
 430 PRINT TAB(10,23)"Press a ke
y...";
 440 dummy=GET
 450 NEXT
 460 PRINT TAB(5,23)"Examine nex
t sector (Y/N)?";
 470 key$=CHR$(GET OR 32)
 480 dadd=dadd+1
 490 UNTIL key$<>"y"
 500 PRINT "N";
 510 END
 520
 530 DEF PROCtitle
 540 CLS
 550 COLOUR 129:COLOUR 0
 560 PRINT TAB(0,1)"************
 Disc  Explorer ************"
 570 COLOUR 128:COLOUR 1
 580 ENDPROC
```

Program III

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Going round the bend

Stuart Bain shows how to add a new graphics command to your micro's Basic language

THE Electron has a good range of powerful graphics commands, yet there are a few notable and annoying omissions. One is a fill command for painting large areas of the screen and the other is a fast circle routine.

A clever patterned flood fill can be carried out by entering John Geraghty's routine published in last month's issue. Now you can also add the missing circle command using the machine code program presented here.

Enter and run the program to assemble the machine code in the spare memory pages &900 and &A00. At the end of the listing is a demonstration of the new star command – this will run automatically.

To use the circle command in your own programs simply enter NEW and either load or type in the program. The command syntax is:

```
*CIRCLE x,y,r,type
```

The variables *x* and *y* are the X and Y coordinates of the centre of the circle, while *r* is the radius. The last parameter, *type*, determines whether a filled or unfilled circle is drawn and should be either one (filled) or zero (unfilled). It is optional and if you leave it out a value of zero will be assumed.

The colour is set using the normal Basic GCOL graphics command. Examples of this new graphics function are:

```
*CIRCLE 640,512,300
*CIRCLE X%,Y,1000/6,1
OSCLI"*CIRCLE"+"RND(1000),RND(10
00),RND(400),1"
```

As you can see, the parameters can be numbers, integer or real variables, calculations or a mixture of all three. The routine can also be called using a complex OSCLI command.

There are two main sections to the machine code. The first part checks the text of the star command to see if it is CIRCLE. If so, it gets the parameters and calls the second section.

A SIN table is created in memory when the program is assembled. Each value is multiplied by 32 to make them whole numbers rather than floating point, and 32.5 is added to make them positive. The COS value can be calculated quite easily from the SIN value.

Two rom routines are used – EVAL at &ABEE and INT at &A3E4. The former evaluates each parameter, calculating its numeric value, and the latter is called to convert this value to an integer if it is a real number.

The addition of this new command further improves the Electron's already superb graphics facilities.

```
 10 REM *CIRCLE command
 20 REM By Stuart Bain
 30 REM (c) Electron User
 40 eval=&ABEE
 50 convert=&A3E4
 60 FOR I%=0 TO 2 STEP 2
 70 P%=&900
 80 [OPTI%
 90 .set%
100 LDA &208:STAold
110 LDA #circ% MOD 256
120 STA &208
130 LDA &209:STA old+1
140 LDA #circ% DIV 256
150 STA &209
160 RTS
170 .circ%
180 STX &F2:STY &F3
190 LDY #1
200 .cch
210 LDA (&F2),Y
220 CMP com-1,Y
230 BNE not
240 INY:CPY #LEN$com+1
250 BNE cch
260 BEQ found
270 .not
280 LDX &F2:LDY &F3
290 JMP (old)
300
310 .com EQUS"CIRCLE"+CHR$13
320 .err BRK:EQUB16:EQUS"Circle
error":BRK
330
340 .found
350 LDA #3:STA num
360 LDX #0:STX fill
370 DEY
380 .parms
390 LDX #0
400 INY
410 .getparm
420 LDA (&F2),Y
430 CMP #ASC","
440 BEQ got
450 CMP #13
460 BEQ got
470 STA &600,X
480 INX:INY
490 BNE getparm
500 .got
510 LDA #13:STA &600,X
520 STX &36
530 STY te
540 JSR eval
550 BEQ err
560 BPL store
570 JSR convert
580 .store
590 LDY te
600 LDX fill
610 LDA &2A:STA co,X
620 LDA &2B:STA co+1,X
630 INX:INX:INX
640 STX fill
650 LDA (&F2),Y
660 CMP #13
670 BEQ gotall
680 DEC num
690 BNE parms
```

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Fairway to spend your time

Product: Holed Out
Price: £12.95 (tape)
Supplier: The Fourth Dimension, PO Box 4444, Sheffield.
Tel: 0742 700661

THE Fourth Dimension is on to a winner here with the best golf simulation I've seen on the Electron. It is packed with features: Two superbly designed 3D 18-hole courses and all the hazards you would expect to find on the real thing, like trees, rough, bunkers and water.

The easier course, Cone Links, is quite a challenge and after mastering it you might just be ready for the second, Pine Isles, which is quite a different ball game altogether.

You can indulge in either strokeplay or matchplay. The idea with the former is to finish all 18 holes in the least number of strokes, while in matchplay the winner is the player who wins most holes.

Up to four players can take part with each selecting one of four skill levels from beginner to professional. The one selected dictates whether the physical hazards or wind strength and direction influence your play.

For instance, as a beginner only the water will affect your shot, whereas as a professional you could be playing from a bad lie in deep rough into a strong headwind.

For all shots up to the green your view is from behind the golfer you control. On the right side of the screen is an information panel displaying details relevant to the hole. You select a club using the Z and X keys from a range of three woods, nine irons, a pitching wedge and a putter.

Next you set the direction to hit the ball by moving a cursor left and right across the course. Here you must also take into account the wind – represented by a circle with a line coming out of it which points in the direction the wind is blowing, while its length represents the wind strength.

When the shot direction is determined you set its power using a meter. As you press Return a sliding bar advances from zero towards 100 per cent and hitting it again sets the percentage of power and causes your nicely animated golfer to jump into action and take a swing at the ball. Using Z or X instead of Return when the meter is advancing will put either a hook or a slice on the ball.

When the ball is hit, its shadow travels along the ground giving an impression of distance. The way it bounces and comes to a stop when it hits the ground is very realistic.

Sometimes the hole you are playing has a path running alongside or across it and if you are skilful enough you can play the stroke so that the ball bounces on the path, making it travel further.

A ball that lands in water is declared lost and you lose two strokes. Landing in a bunker produces two possible outcomes: It is either plugged or you have a good lie. The latter is still a difficult shot, but a plugged ball

GOLDEN electron user GAME

is sunk into the sand and is much harder to play.

When you reach the green the screen is redrawn and you view the action from above. The indicator in the panel now represents the slope of the green instead of the wind. The line drawn points downhill and its length shows the steepness of the slope.

Again when you have set the direction of your shot, adjust the power and watch the golfer swing into action. There is good realism here with the ball bouncing up off the edge of the cup if you hit it too hard or running round it if you're a little off centre.

After each hole the score card is shown displaying everyone's progress. During strokeplay it shows each player's skill level, the number of shots and his score related to par. In matchplay the score is replaced by the number of holes by which a player is winning.

There is a lot more to this game than just whacking the ball down the fairway. Each hole is a puzzle in its own right. You have to plan your shots carefully and take the utmost care in selecting the right club and power.

There are precise maps in the well documented instruction booklet to help you plan your strokes. There's also a very useful quick reference guide to the distances – in the air and along the ground – that the ball will travel when using the various clubs.

The graphics are cleverly done using dithered colours to produce pastel shades on a four colour screen. Sound is restricted to the swing of the club and striking the ball plus a few minor noises such as a splash when your ball takes a dive.

I thoroughly enjoyed this simulation. If you're a golfing fan wanting to keep your hand in – buy it. If you're not, still buy it – it will keep you entertained for hours and hours. This is a test of skill not to be missed.

David McLachlan

Sound	*6*
Graphics	*10*
Playability	*10*
Value for money	*9*
Overall	*9*

SecondOpinion

There have been many golf simulations for the Electron in the past, but none match up to this brilliant game from The Fourth Dimension. The 3D perspective graphics are stunning and the gameplay is interesting and varied.

It doesn't matter whether you're a golf fan or not, you'll still enjoy this challenging and skilful computer version.

Janice Murray

Wargamers' delight

Product: Tank Attack
Price: £12.99 (tape)
Supplier: CDS Software, Nimrod House, Becket Road, Doncaster DN2 4AD.
Tel: 0302 321134

TANK Attack is a micro-mediated board game for two to four players. The package comprises a top quality fold-out playing board, a total of 48 plastic tanks and armoured cars and a book of instructions.

The opening screen calls on you to select which of the four countries you want to take part in the conflict. My first few combinations were rejected without explanation. Close examination of the playing board revealed the cause – adjacent countries such as Sarapan and Calderon have a common border, as do Armania and Kazaldis. Opposing countries have a shaded no-man's-land separating their official borders.

By choosing the correct countries you can devise conflicts of increasing magnitude such as one to one, an alliance of two against one or a full blooded four country war. If you are using only two of the four countries you are given the opportunity to double the strength of your forces by using the spare tanks.

Once you have made your alliances you can get on with the job of placing your pieces in their opening positions. A solid blue line denotes the outskirts of each capital city and all vehicles start from within this line.

Other points of interest on the playing board are the repair centres to which tanks may be returned when damaged by enemy fire, the length of a vehicle's confinement being determined by the severity of the damage sustained. The Electron will inform you when you can return a vehicle to active duty.

On-screen headlines are displayed before each round in the battle – these comprise a news flash, a weather report and a political comment. Prevailing weather conditions can have a marked effect upon the movement capability of one or both armies depending on the location of the weather front.

Your link with the micro is your battle strength display. This shows how many active tanks and armoured cars remain and also reports how many units are currently undergoing repairs. If these figures do not tally with the number of pieces on the board someone is cheating!

At the bottom of the battle strength screen are four icons, some of which will be animated. Only the active ones are available. By moving a pointer over them you can choose to move, attack the enemy headquarters or finish your turn and pass control to the next

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player. Selecting the movement order icon activates a teleprinter which displays your total movement allowance for the turn. This can be divided up among any number of vehicles.

Once this section is complete you can engage the enemy or fire on the opposing HQ. Both types of vehicle have a maximum range of four board squares, with the Electron making accuracy adjustments to your shots based on the range at which you are firing.

As the battle develops you will eventually come within firing range of the enemy. The Electron asks you to input the armour types of the two units involved – there are three for tanks and two for armoured cars – the numbers embossed on the underside of each unit relate to its armour strength. Finally, you specify the range of your shot and battle can commence.

The view changes to that of an observer on a distant hill top. The tanks fire one shot each and the position of the explosion shows whether or not you hit your opponent or were indeed hit yourself. The teleprinter tells you of the degree of damage sustained by each vehicle. A repairable tank can be placed on a repair depot, but you will be asked to remove seriously damaged ones from the board and your tank tally will be adjusted.

When you reach the enemy HQ to deliver the coup de grâs you must move on to the square itself as you are not asked for a firing range. This last shot of the conflict is always accurate and always decisive.

There is no need to go through the rigmarole of securing the remaining enemy buildings – the teleprinter display brings news that this has already been carried out and your victory confirmed.

Tank Attack is a superb program that really takes the leg work out of wargaming. By leaving the monitoring of repair times, damage assessment and weather reports to the impartial logic of the micro you can concentrate on what really counts – strategy.

Jon Revis

Sound	4
Graphics	7
Playability	10
Value for money	9
Overall	8

SecondOpinion

Tank Attack is unusual in that it's a computer controlled board game. This is fine if you like this sort of thing, but it won't be everyone's cup of tea. I would have preferred to see the whole game played on the micro rather than half on the micro and half on the board.

Janice Murray

Hallmarked golden oldies

Product: Play It Again Sam 7
Price: £9.95 (tape)
Supplier: Superior Software, Regent House, Skinner Lane, Leeds, Yorkshire LS7 1AX.
Tel: (0532) 459453

PLAY It Again Sam 7 is the latest in an ever-increasing line of highly successful compilations from the Superior stable. The package features three cracking games from the past plus a superb brand new offering.

Starting with the newcomer first, **FireTrack** is probably the ultimate shoot-'em-up. It features amazingly smooth vertical-scrolling arcade action that starts gently and speeds up at just the right pace until only the best stand a chance of surviving for more than a few moments.

You fly a space fighter low over alien worlds blasting the locals' power nodes, junctions and computer centres, finally destroying the Devil Rock's eyes for a bonus. The action is fast and furious.

The graphics are stunning and give an amazingly realistic 3D effect that I wouldn't have thought was possible on the Electron. What's more, for anyone who can spare the concentration, a number of familiar shapes and features can be seen in the landscapes – a Pac-Man chasing power pills, the number 42 and many more. However, I had to be told about their existence – I was too busy trying to avoid the squadrons of enemy ships swirling around me in weird and wonderful formations.

FireTrack takes the ever-popular concept of a shoot-'em-up, transfigures it and implements it faultlessly.

In **Bonecruncher** you play Bono, a little green dragon which lives in a castle by the sea. You have set up Bono's Bathing Company making skeleton soap, a commodity much prized by the giant sea monsters which bathe nearby. It's made from the bones of skeletons that can be collected from around the castle and boiled in your cauldron.

The castle is anything but a safe place. Not only are there trapdoors through which you can disappear without trace, but some skeletons haven't stopped moving yet and they're deadly. And giant spiders rush around the walls biting anyone who gets in their way. They will also eat any bones, so it's often a race to collect the skeletons before they do.

Finally, there are Glooks – large round ball-like creatures which love the smell of soap. When you have climbed up a stairway to supply another customer they – after a short

Fire Track: Faultless implementation of the shoot-'em-up concept

delay – all move in the direction of the stairs.

Although a Glook is not in itself harmful, it will crush you if you get in its way when it's moving. They may also block your route. However, you can push one, or take advantage of its movement, to suffocate monsters and turn them into skeletons.

Fortunately Bono's Bathing Company is not a one-man show. Your partner Fozzy is strong enough to hold monsters and spiders at bay, but he's not very bright. Always keep an eye on him to make sure that he is not trapped or wandering round in circles.

Bonecruncher will delight game players of all ages.

Snapper , Acornsoft's implementation of the ever-popular Pac Man, was one of the first games ever released for the Electron. As the every-hungry Snapper you must make your way around a maze chomping all the dots. Pursuing you are four bug-eyed baddies that initially follow pre-programmed paths, but before very long begin to converge on you.

Fortunately, there are four power pills, one at each corner of the maze, which you can munch to give yourself a limited period of invulnerability. The baddies now turn blue with fear and you can eat them for extra bonus points. But strike quickly, because the effect of the power pills soon wears off.

Snapper's gameplay does not offer great variety, but it is still very addictive.

Ghouls is, to my mind, the only disappointment. Although popular in its heyday, it falls well short of the other offerings' standard. It is a very basic platform game, similar in design to Manic Miner, but features none of its finer touches. The graphics are simpler, the keyboard is over-responsive and the gameplay could be better.

Like Manic Miner, Ghouls features a number of different levels, but the only real difference between them is the layout – the graphic features seem identical from one screen to the next.

The sound effects are quite good, particularly when you lose a life and it also features a lively piece of music that plays when you complete a level and a haunting melody while waiting for you to enter your name on the high score table.

Ghouls may appeal to dedicated fans of platform games, but so many better examples are available that it must be considered a makeweight for the three real stars of this compilation.

Martin Reed

Ghouls: A makeweight for the three real stars

Sound	*8*
Graphic	*8*
Playability	*9*
Value for money	*8*
Overall	*8*

SecondOpinion

Like its predecessors, Sam 7 is a superb compilation that is excellent value for money – even if you have already got one or two of the titles.

The real gem is the previously unreleased FireTrack. This technically brilliant piece of programming makes a fine game which proves to be very fast and addictive. The other titles can be considered bonuses thrown in for free.

Janice Murray

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Within the pages of these three books you'll find ALL the information you need to fully harness the power of your Electron. They cover Basic, machine-code programming and the operating system, and between them they also show how to combine all three to create more powerful and effective programs.

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- Make every byte count where program space is tight
- Use the Electron's exciting capabilities to the full by following the complete circuit diagram

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Perform a tape transplant

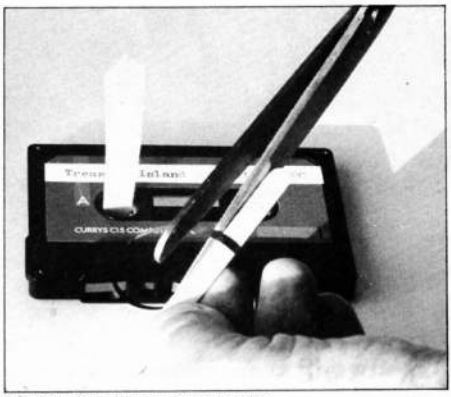
Ernest Howorth shows how to make up your own customised tapes from compilations

COMPILATIONS with as many as 10 full length games on one cassette tape have been around for some time now, and indeed, some are among the best sellers. Although most are good value for money, the software houses appear to be unaware of the difficulty we experience in finding a particular game in the middle of the tape.

Compared with discs, tapes take a long time to load, especially the more recent games featuring elaborate introductory graphics which have to be endured before the main program starts to load. It is frustrating, therefore, when valuable time is wasted finding the program on a long tape, so the following ideas may help.

The simplest solution if you have a tape position indicator is to remember to set it to zero at the start of the tape and make a note of the various game start positions.

None of the software companies have got around to introducing coloured leader tape between programs, probably for cost reasons, but this would be very useful and is something we can do ourselves. It involves cutting and joining the tape, of course, but this will be explained later.



Tape is drawn out of the centre aperture and cut

Tape from the left spool is joined to the right spool of the new cassette

I suggest the best option is to split up the compilation and to transfer any worthwhile games you want to use regularly on to separate cassettes, each neatly labelled and ready to load. The operation is painless and can be carried out simply and for the cost of a 15 minute computer tape costing around 50 pence.

Good old Sam is not only playing again, now he's cheating as well. Unfortunately, the short cheat programs are even more difficult to locate, and with great advantage can be inserted before the start of the main programs.

This way you don't have to cheat, but if you're a bit rusty and decide to slow down the enemy blasters, or even start off with extra ammunition, at least you won't have to spend half the evening lining up programs. This also applies to joystick utilities.

If there is no built-in copy protection it is better to save programs directly on to blank cassettes. Cutting and joining tape is not difficult, but care is required as it is fragile and easily damaged. The slightest defect could prevent the program loading, but if you follow these guidelines all will be well.

The join is made by butting together two square cut ends of tape and applying a narrow strip of special splicing tape to the back – not the recording side which faces outwards. The surplus splicing tape must be trimmed accurately to the edges of the now continuous tape using a very sharp blade.

The operation is best carried out using a splicer which will hold the tape securely while the joint is made. Excellent kits are available for splicing audio tapes, containing everything needed including comprehensive instructions. Note that office cellulose tapes and the like are useless and will cause jamming and other problems.

If you are not confident of your ability then practise with an unwanted cassette first.

Start off with a blank C15 cassette. First apply the appropriate label, then with this side uppermost and the tape apertures facing you, ensure the tape is wound on to the left spool. You will have plenty of spare tape so turn the right hand spool a few turns anti-clockwise to wind forward to provide a short length of leader tape at the start of the transferred program.

Carefully draw out about 12 inches of tape

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from the middle aperture and cut the mid point of the loop. The beginning of the program to be transferred from the other cassette should now be joined to the short length from the right hand spool

Now carefully position the cassettes so the tape can pass freely on to the right spool when you turn it slowly anti-clockwise by hand. When the marked end of the program is reached cut the tape and join the trailing end to the other end from the new cassette, which can now be rewound and will be ready to load.

Always take up any slack tape before replacing the cassette in the recorder. Anything recorded on the reverse side of the tape will now be useless. Remember that a join will interrupt a program no matter how well the splice has been made, so only record on uncut continuous tape.

Now comes the method to separate the chosen program from the compilation. There will be at least 18 inches of silent tape between each program and the cut must be made in the middle of this section.

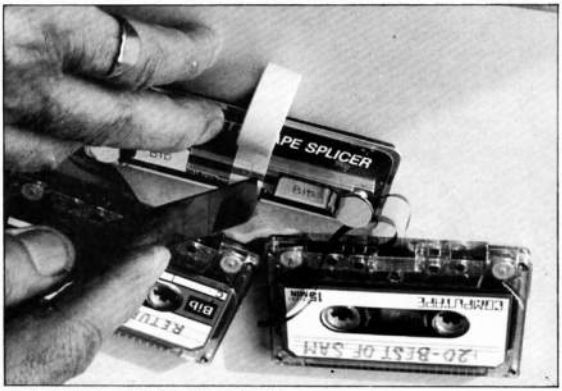
With the cassette in the recorder use the *CAT command to locate the start of the chosen program. Now run the tape back to the finish of the previous program. You must stop the tape mid way between these two points.

This can be done by listening to the sound through the cassette recorder's speaker and timing the mid point by means of a watch that displays seconds. Take the cassette out of the recorder and mark the position of the cut by making a small hole. Eventually this will be joined to the right spool of the new cassette.

Now the cassette is returned to the recorder and the end of the program marked in the same fashion. Return to the mark at the start and make the first cut. The part of the tape with the program on can now be transferred.

Before joining up the cut compilation it might be a help in the future to splice in a short length of coloured tape.

You will find this an absorbing way of making up a library of your favourite games at a modest cost.



Surplus splicing tape is trimmed with a sharp knife

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Programs available only on cassette

Just about all the games in your collection can now be cracked – using Cheat it Again, Joe!

Each tape contains a massive 20 cheats and they're so easy to use. Just load the cheat before you run the game and you're away – with infinite lives, extra speed, more credits, invulnerability and so on.

Now you can complete those games that have been frustrating you for months.

And for only £2.99 this is the ideal way to bring your games collection back to life.

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Shark	Frankenstein 2000	Ziggy	3D Dotty
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Breakthrough	Overdrive	Future Shock	Creepy Cave

TO ORDER PLEASE USE THE FORM ON PAGE 43

Rhyme and reasoning

Andrew and Stephen Weir combine lively nursery rhymes and naughts and crosses

Tic Tac Rhymes is a fun two-player educational game for young children. It combines nursery rhymes with the old game of naughts and crosses. After printing an instruction page the program presents a series of well known nursery rhymes and prints them on the screen one at a time as in Figure I.

In the rhyme one of the words is missing and you have to type it in. Just type the letters without pressing Return or Caps Lk – you don't need them.

Each letter is represented by a short dash so you can tell how long the word is. If the word entered is the correct one you get to play one turn at naughts and crosses (see Figure II). Get it wrong and you miss your turn and the other player has his chance to guess the missing word in a different rhyme.

The winner of Tic Tac Rhymes is the player who wins the game of naughts and crosses. When this happens a tune is played and you go right back to the beginning of the program. As the rhymes are randomly chosen you are unlikely to be asked the same ones again.

Many tunes are built into the program and are played when you correctly enter a word in a nursery rhyme or place a naught or cross. The musical sound effects and tunes can be turned on or off at any time by pressing the Copy key.

```
  10 REM Tic Tac Rhymes
  20 REM By S and A Weir
  30 REM (c) Electron User
  40 MODE5
  50 PROCinit
  60 PROCmain
  70 END
  80 DEF PROCinit inX=0:jn=11
 110 VDU23,240,170,85,170,85,170,85,170,85,170,85,23,242,160,80,160,80,160,80,160,80,23,241,10,5,10,5,10,5,10,5,23,250,0,0,0,0,0,0,0,126
 120 code=&900:PROCass
 130 c=RND(TIME)
 140 *FX11,0
 150 *FX220,1
 160 *FX4,1
 170 ON ERROR MODE6:REPORT:PRINT " at line ";ERL'':END
 180 ml%=6:so%=-1:DIMscr$(ml%),pl$(2),grid%(9),hurry$(6):RESTORE200:FORI%=1TO6:READhurry$(I%):NEXT
 190 ENDPROC
 200 DATA Plenty of time,Bit of time left,Hurry up!,Almost out...,Quick!,Too slow!
 210 DEF PROCs_dt DIM cross 4*32+2,n0 4*32+2,blank 4*32+2:RESTORE890:PROCLo(cross):RESTORE930:PROCLo(n0):RESTORE970:PROCLo(blank):in=-1:ENDPROC
 220 DEF PROCLo(loc) LOCALby,dt,cnt,offset,x,y:READx,y:?loc=x:?(loc+1)=y:loc=loc+2:by=0:REPEAT READdt:IFdt>=0by?loc=dt
 230 IFdt=-1READcnt,dt:FORoffset=1TOcnt:by?loc=dt:by=by+1:NEXT ELSE by=by+1
 240 UNTILdt=-9:ENDPROC
 250 DEF PROCass
 260 os=&FFEE:osword=&FFF1:new=&70:rows=&72:columns=&73:t1=&74:place=&76:over=&80
 270 FORpass=0TO2STEP2:P%=code:[OPTpass
 280 .d STAb:LDA#10:LDX#b AND255:LDY#b DIV256:JSRosword:LDA#0:STAj:.d1 LDA#23:JSRos:LDAj:ORA#224:JSRos:LDAj:ASLA:ASLA:TAX:LDY#4:.d2 INX:LDAb,X:JSRos:JSRos:DEY:BNEd2:INCj:LDAj
 290 CMP#2:BNEd1:LDX#4:.d3 LDAs,X:JSRos:DEX:BPLd3:RTS
 300 .sprite LDY#0:LDAplace:STAnd+1:LDAplace+1:STAnd+2
 310 .loop1:LDAnew+1:STAt1+1:LDAnew:STAt1:LDXrows:.loop2:.nd LDA &3000,Y:STX&81:LDXover:BNEov:EOR(new),Y:.ov LDX&81:STA(new),Y:INCnd+1:BNEp3:INCnd+2:.p3 LDAnew:AND #7:CMP#7:BEQbottom2
 320 INCnew:BNEp4:INCnew+1:.p4 BNE next2
 330 .bottom2 CLC:LDAnew:ADC#&39:STAnew:LDAnew+1:ADC#1:STAnew+1:.next2:DEX:BNE loop2:LDAt1:ADC#8:STAnew:LDAt1+1:ADC#0:STAnew+1:DECcolumns:BNEloop1:RTS
 340 .b:]:j=b+9:s=j+1:$s=CHR$11+CHR$225+CHR$8+CHR$10+CHR$224:NEXT:ENDPROC
 350 ENDPROC
 360 DEF PROCbig(A$) FORCH%=1TOLENA$:A%=ASCMID$(A$,CH%,1):CALLd:NEXT:ENDPROC
 370 DEF PROCs(stored,screen,ov)!new=screen:!place=stored+2:?rows=?(stored+1):?columns=?stored:?over=ov:CALLsprite:ENDPROC
 380 DEF PROCcen(A$,Y%) PRINTTAB((40-LENA$)/2,Y%);A$;:ENDPROC
 390 DEFPROCbox(x1,y1,x2,y2,fill) MOVEx1,y1:IF fill MOVEx2,y1:PLOT85,x1,y2:PLOT85,x2,y2 ELSE DRAWx1,y2:DRAWx2,y2:DRAWx2,y1:DRAWx1,y1
 400 ENDPROC
 410 DEF PROCborder(x1,y1,x2,y2) MOVEx1*32+16,1024-y1*32+-16:DRAWx1*32+16,1024-y2*32-16:DRAWx2*32+16,1024-y2*32-16:DRAWx2*32+16,1024-y1*32+-16:DRAWx1*32+16,1024-y1*32-16:ENDPROC
 420 DEF PROCk(A$,x%,y%) PRINTTAB(x%,y%);A$;:PROCborder(x%-1,y%-1,x%+LENA$,y%+1):ENDPROC
 430 DEF PROCmain
 440 REPEAT PROCinstruct:PROCnames:pl%=RND(2):PROCoutline:rhyme%=RND(50):won%=0:esc%=0:FORI%=1TO9:grid%(I%)=0:NEXT:REPEAT rhyme%=rhyme%+1:pl%=(pl%=2)+2:correct%=FNq:IFcorrect% PROCplay
 450 UNTIL won%>0 OR esc%:SOUND1,0,0,50:PROCps:UNTILO
 460 REM Choice Lyrics!
 470 DATA "Little #Miss Muffet #sat #on #her tuffet, eating #her curds #and whey.","#Along #came #a spider, #and sat #down beside #her, #and frightened #Miss Muffet away!"
 480 DATA #Old Mother #Hubbard #went #to #the cupboard #to #fetch #her #poor dog #a bone.,"#But #when #she #got there #the cupboard #was bare, #and #so #the poor dog #had none."
 490 DATA "One, two, three four five, #Once #I #caught #a fish al
```

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◀ From Page 21

```
ive.","Six, seven, eight nine ten
, #then #I #let #it #go again."
  500 DATA "#There #was #an #old
 lady #who #lived #in #a shoe. # #
 She #had #so #many children, #she
 #didn't #know what #to do."
  510 DATA "Humpty Dumpty sat #on
 #a wall, Humpty Dumpty #had #a g
 reat fall.","All #the #king's hor
 ses #and #all #the #king's men #c
 ouldn't #put Humpty together agai
 n.
  520 DATA "Mary #had #a little l
 amb, #it's fleece #was white #as
 snow."
  530 DATA "Twinkle twinkle littl
 e star, #how #I wonder #what #you
  #are.","#Up above #the world #so
  high, like #a diamond #in #the s
 ky."
  540 DATA "Mary Mary quite contr
 ary, #how #does #your garden grow
 ?","#With cockle shells #and litt
 le bells, #and pretty maids #all
 #in #a row."
  550 DATA Peter Peter Pumpkin Ea
 ter #had #a wife #and #couldn't k
 eep #her.,"#Put #her #in #a pumpk
 in shell, #and #there #he kept #h
 er very well."
  560 DATA Little Jack Horner #sa
 t #in #the corner eating #his Chr
 istmas pie.,#He stück #in #his th
 umb #and pulled #out #a plum #and
  #said #"what #a good boy #am #I!
 "
  570 DATA "Peas #porridge hot, #
 peas porridge cold, #peas #porrid
 ge #in #the pot nine #days old.",
 "#Some #like #it hot, #some #like
  #it cold. #Some #like #it #in #t
 he pot nine days #old."
  580 DATA Sea shells sea shells
 #on #the sea shore.
  590 DATA "Baa baa black sheep #
 have #you #any wool? # #Yes sir,
 #yes #sir, three bags full.","#On
 e #for #the master, #and #one #fo
 r #the dame.","#And #one #for #th
 e little boy #who #lives down #th
 e lane."
  600 DATA "Yankee Doodle #went #
 to town, riding #on #a pony.","#H
 e #stuck #a feather #in #his hat
 #and #called #it macaroni."
  610 DATA"Hickory dickory dock.
 #The mouse #ran #up #the clock.",
 "#Three blind mice, #three #blind
  mice. #See #how #they run. #See
  #how #they #run.","#Hey diddle di
 ddle, #the cat #and #the fiddle.
 #The cow #jumped #over #the moon.
 "
  620 DATA"#The little dog laughe
 d #to #see #such #fun, #and #the
 dish #ran #away #with #the spoon.
 "
  630 DATA "END"
  640 DEF FNq PROCclear(3):VDU19,
 1,1;0;19,2,3;0;17,3,31,(20-(LENpl
 $(pl%)+6))/2,27:PRINTpl$(pl%);:CO
 LOUR2:PRINT", what":PRINTTAB(2,29
 );"word is missing?":COLOUR3
  650 RESTORE460:FORI%=1TO#rhyme%:
 READline$:IFline$="END"  RESTORE
 460:READline$:rhyme%=0
  660 NEXT:word$=FNprint(line$):i
 $="":hurry%=0:REPEAT q%=INKEY(400
 ):IF q%=-1 hurry%=hurry%+1:PROCcl
 ear(2):COLOUR3:PRINTTAB((20-LENhu
 rry$(hurry%))DIV2,28);hurry$(hurr
 y%)
  670 PROCso(q%):IF(q%>=ASC"A"AND
 q%<=ASC"Z")OR(q%>=ASC"a"ANDq%<=AS
 C"z")PROCenter(q%)
  680 IFq%=127 i$=LEFT$(i$,LENi$-
 1):COLOUR2:PRINTTAB(leftX,upX);:I
 Fi$<>"" PROCbig(i$)
  690 IFq%=127 COLOUR3:PROCbig(CH
 R$250)
  700 UNTIL (LENi$=LENu$) OR hurr
 y%=6 OR q%=27:IFq%=27 esc%=-1:=0
  710 IFu$=i$ PROCps ELSE IF hurr
 y%<6  PROCclear(2):COLOUR3:PRINTT
 AB(2,28);"That was wrong!"
  720 IFu$<>i$ FORscale%=200TO0ST
 EP-5:PROCso(INKEY(0)):SOUND1,-10,
 scale%,2:NEXT
  730 =(u$=i$)
  740 DEF PROCenter(q%) look$=MID
 $(u$,LENi$+1,1):IFlook$>="A"ANDlo
 ok$<="Z"ANDq%>=ASC"a"ANDq%<=ASC"z
 " q%=q%-32
  750 IFlook$>="a"ANDlook$<="z"AN
 Dq%>=ASC"A"ANDq%<=ASC"Z" q%=q%+32
  760 i$=i$+CHR$q%:COLOUR2:PRINTT
 AB(left%,up%);:PROCbig(i$):ENDPRO
 C
  770 DEF FNprint(line$) w%=0:pos
 %=0:REPEAT spaceX=INSTR(line$," "
 ,posX+1):IFMID$(line$,posX+1,1)<>
 "#" w%=w%+1
  780 pos%=spaceX:UNTILposX=OORpo
 sX>=LENline$:uX=RND(w%):u$="":dow
 nX=1:wX=0:FORIX=1TOmlX:scr$(IX)=""
 :NEXT:posX=0:REPEAT spaceX=INSTR
 (line$," ",posX+1):f$=MID$(line$,
 posX+1,spaceX-posX)
  790 IF LEFT$(f$,1)="#" f$=RIGHT
 $(f$,LENf$-1):dontX=-1 ELSE w%=w%
 +1:dontX=0
  800 IFu%=w% AND NOT dontX  PROC
 format
  810 IF LENscr$(downX)+LENf$>18
 scr$(downX)=LEFT$(scr$(downX),LEN
 scr$(downX)-1):downX=downX+1
  820 IFu%=w% AND NOT dontX up%=d
 ownX*3+4:leftX=LENscr$(downX)+1
  830 scr$(downX)=scr$(downX)+f$:
 posX=spaceX:UNTILposX>=LENline$ O
 R posX=0
  840 FORIX=1TOmlX:PRINTTAB(1,IX*
 3+4);:IFscr$(IX)<>""  PROCbig(scr
 $(IX))
  850 NEXT:=u$
  860 DEF PROCformat FORJX=1TOLEN
 f$:char$=MID$(f$,JX,1):IF(char$>=
 "A"ANDchar$<="Z")OR(char$>="a"AND
 char$<="z") u$=u$+char$:f$=LEFT$(
 f$,JX-1)+CHR$250+MID$(f$,JX+1,LEN
 f$)
  870 NEXT:ENDPROC
  880 REM Sprite Data
  890 REM Cross
  900 DATA 4,32
  910 DATA 68,204,238,102,119,51,
 51,17,17,-1,13,0,17,17,51,51,119,
 102,238,204,68,-1,7,0,136,136,204
 ,204,238,102,119,51,51,17,51,51,1
 19,102,238,204,204,136,136,-1,13,
 0,17,17,51,51,119,102,238,204,204
 ,136,204,204
  920 DATA 238,102,119,51,51,17,1
 7,-1,7,0,34,51,119,102,238,204,20
 4,136,136,-1,13,0,136,136,204,204
 ,238,102,119,51,34,0,-9
  930 REM Naught
  940 DATA 4,32
  950 DATA 0,0,0,17,51,51,119,119
 ,102,238,-1,12,204,238,102,119,11
 9,51,51,17,0,0,0,17,119,255,255,2
 38,136,-1,20,0,136,255,255,255,11
 9,0,136,238,255,255,119,17,-1,20,
 0,17,255,255,255,238,-1,4,0,136,2
 04,204
  960 DATA 238,238,102,119,-1,12,
 51,119,102,238,238,204,204,136,0,
 0,0,-9
  970 REM Blank
  980 DATA 4,32,-1,128,0,-9
  990 DEF PROCfill(num%,what%) nu
 m%=num%-1:xX=numXMOD3:yX=2-(numXD
 IV3):num%=yX*&640+xX*&30+&63A0:IF
 what%=1PROCs(n0,num%,1) ELSE IFwh
 at%=2 PROCs(cross,num%,1) ELSE PR
 OCs(blank,num%,1)
 1000 ENDPROC
 1010 DEF PROCinstruct VDU22,4,17
 ,129,17,0,23;8202;0;0;0;:PRINT ST
 RING$(80," ");TAB(13,1);:PROCbig
 ("Tic Tac Rhymes")
 1020 VDU17,128,17,1:PROCcen("You
  must guess the missing",6):PROCc
 en("word from a nursery rhyme.",8
 ):PROCborder(4,9,36,5)
 1030 PRINTTAB(0,12)"Try to beat
 your opponent in the game of"'"Ti
 c-Tac-Toe (Naughts and Crosses)."
 '"Before you can place a naught
 or a cross"'"on the playing grid,
  you must first type"'"the missin
 g word from part of a nursery"'
 1040 PRINT"rhyme you know.  If y
 ou get it wrong,"''"you cannot ha
 ve your turn..."''"To toggle sou
 nd OFF and ON, press ";:PROCk("CO
 PY",POS+1,27)
 1050 VDU28,0,31,39,29,17,129,17,
 0,12,26,18,0,0:IF NOT inX PROCcen
 ("Please wait",30):PROCs_dt:inX=-
 1
```

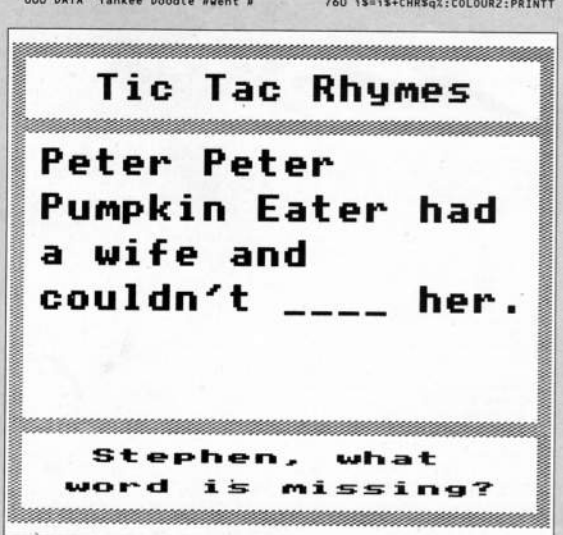

Figure 1: Enter the missing word in the nursery rhyme

```
1060 PRINTTAB(10,30);"Press the
";:PROCk("SPACE BAR",POS+1,30):RE
PEAT q%=GET:PROCso(q%):UNTILq%=32
:ENDPROC
1070 DEF PROCnames PROCps:VDU17,
128,17,1,28,0,31,39,5,12,26,18,0,
1:PROCcen("What is your name?",8)
:PROCborder(7,10,33,6)
1080 PRINTTAB(2,13);"If you make
a mistake, press ";:PROCk("DELET
E",POS+1,13):PRINTTAB(2,16);"Pres
s ";:PROCk("RETURN",POS+1,16):PRI
NTTAB(POS+2,16);"when you have fi
nished"
1090 VDU17,129,17,0,28,15,25,26,
22,12,18,0,0,26:PROCborder(15,25,
26,22)
1100 pl$(1)=FNname_in:IFpl$(1)=""
 pl$(1)="Player 1"
1110 VDU17,128,17,1,28,0,10,39,6
,12,26,18,0,1:PROCcen("Who is you
r opponent?",8):PROCborder(8,10,3
0,6):PRINTTAB(0,29);SPC40;:VDU17,
129,17,0,28,15,25,26,22,12,18,0,0
,26:PROCborder(15,25,26,22):pl$(2
)=FNname_in
1120 IFpl$(2)="" pl$(2)="Player
2"
1130 ENDPROC
1140 DEF FNname_in n$="":p%=0:cu
rs%=1:REPEAT q%=GET:IFq%>=ASC"A"A
NDq%<=ASC"Z" q%=q%+32
1150 PROCso(q%):IFq%>=ASC"a"ANDq
%<=ASC"z"AND n$="" q%=q%-32
1160 IF((q%>=ASC"a"ANDq%<=ASC"z"
)OR(q%>=ASC"A"ANDq%<=ASC"Z"))k%=-
1 ELSE k%=0
1170 IFk% AND LENn$<10 n$=n$+CHR
$q%:p%=-1 ELSEIFk% SOUND1,-10,255
,1:COLOUR128:COLOUR1:PROCcen("No
longer than 10 letters please!",2
9):COLOUR129:COLOUR0
1180 IFq%=127 AND n$<>"" n$=LEFT
$(n$,LENn$-1):p%=-1 ELSE IFq%=127
 SOUND1,-10,255,1
1190 IFp% PRINTTAB(16,23);:PROCb
ig(n$+STRING$(10-LENn$," "))
1200 UNTILq%=13:=n$
1210 DEF PROCoutline VDU22,5,23;
8202;0;0;0;17,1:PRINTTAB(0,0);STR
ING$(20,CHR$240);:FORY%=1TO4:PRIN
TTAB(0,Y%);CHR$242;TAB(19,Y%);CHR
$241;:NEXT:PRINTTAB(0,5);STRING$(
20,CHR$240)
1220 FORY%=6TO24:PRINTTAB(0,Y%);
CHR$242;TAB(19,Y%);CHR$241;:NEXT
1230 VDU28,0,31,19,25:FORY%=0TO4
:PRINTTAB(0,Y%);CHR$242;TAB(19,Y%
);CHR$241;:NEXT:PRINTTAB(0,5);STR
ING$(20,CHR$240);TAB(0,0);CHR$11;
:VDU26
1240 PRINTTAB(0,25);STRING$(20,C
HR$240);
1250 VDU17,2,31,3,2:PROCbig("Tic
Tac Rhymes"):ENDPROC
1260 DEF PROCplay PROCclear(3):V
DU19,1,2;0;19,2,6;0;:GCOL0,1:MOVE
544,272:DRAW544,752:MOVE736,752:D
RAW736,272:MOVE352,432:DRAW928,43
2:MOVE928,592:DRAW352,592
1270 VDU17,3,31,(20-(LENpl$(pl%)
+7))/2,27:PRINTpl$(pl%);:COLOUR2:
PRINT"'s turn":PRINTTAB(3,29);"Pr
ess a Number"
1280 FORI%=1TO9:IFgrid%(I%)>0 PR
OCfill(I%,grid%(I%)) ELSE x%=(I%-
1)MOD3:y%=(I%-1)DIV3:x%=x%*3*64+3
52+64:y%=y%*5*32+384:VDU5:MOVEx%,
y%:GCOL0,2:PROCbig(STR$I%):VDU4
1290 NEXT:REPEAT REPEAT q%=GET:P
ROCso(q%):UNTIL(q%>=ASC""ANDq%<=
ASC"9")ORq%=27:IFq%=27 esc%=-1:UN
TIL-1:ENDPROC
1300 pos%=q%-ASC"0":UNTILgrid%(p
os%)=0:grid%(pos%)=pl%:FORI%=1TO9
:PROCfill(I%,grid%(I%)):NEXT
1310 IFFNwon=1 PROCclear(2):COLO
UR2:PRINTTAB(5,27);"Well done":CO
LOUR3:PRINTTAB((20-(LENpl$(pl%)+1
))DIV2,29);pl$(pl%)+"!":won%=pl%
1320 IFFNwon=2 PROCclear(2):COLO
UR2:PRINTTAB(4,28);"It's a draw!"
:won%=3
1330 PROCps:ENDPROC
1340 DEF PROCclear(T%) IF T%=10R
T%=3 VDU28,1,24,18,6,12,26
1350 IFT%>=2 VDU28,1,30,18,26,12
,26
1360 ENDPROC
1370 DEF PROCps:TIME=0:ji%=RND(j
n):IF ji%=1 RESTORE1580 ELSE IF j
i%=2 RESTORE1590 ELSE IF ji%=3 RE
STORE1600 ELSE IF ji%=4 RESTORE16
10 ELSE IF ji%=5 RESTORE1620 ELSE
 IF ji%=6 RESTORE1630
1380 IFji%=7 RESTORE1640 ELSE IF
 ji%=8 RESTORE1650 ELSE IFji%=9 R
ESTORE1660 ELSE IF ji%=10 RESTORE
1670 ELSE IF ji%=11 RESTORE1680
1390 READtempo,trans:REPEAT PROC
so(INKEY(0)):READpi:IFpi<>-9 READ
dur:IFpi=-1 SOUND1,0,0,dur*tempo
ELSE IFpi<>-9 SOUND1,-10,pi+trans
,dur*tempo
1400 UNTILpi=-9:REPEAT UNTILTIME
>200:ENDPROC
1410 DEF FNwon RESTORE1560:c%=0:
REPEAT c%=c%+1:all%=0:FORI%=1TO3:
READnum%:all%=all%+(grid%(num%)<>
pl%)+1:NEXT
1420 UNTILc%=8ORall%=3:IFall%=3
PROCline(c%):=1
1430 all%=0:FORI%=1TO9:IFgrid%(I
%)>0 all%=all%+1
1440 NEXT:IFall%=9 THEN =2 ELSE
=0
1450 DEF PROCline(c%) GCOL0,2:IF
c%=1PROCbox(256,348,1024,356,-1)
ELSE IFc%=2 PROCbox(256,508,1024,
516,-1) ELSE IFc%=3 PROCbox(256,6
68,1024,676,-1)
1460 IFc%=4 PROCbox(444,768,452,
256,-1) ELSE IFc%=5 PROCbox(636,7
68,644,256,-1) ELSE IFc%=6 PROCbo
x(828,768,836,256,-1)
1470 IFc%=7 MOVE328,256:MOVE960,
760:PLOT85,320,264:PLOT85,952,768
1480 IFc%=8 MOVE960,264:MOVE328,
768:PLOT85,952,256:PLOT85,320,760
1490 ENDPROC
1500 DEF PROCso(q%) IFq%<>135 EN
DPROC
1510 so%=NOTso%:IFso% THEN *FX21
0,0
1520 IF NOTso% THEN *FX15
1530 IF NOTso% THEN *FX210,1
1540 ENDPROC
1550 REM Winning combinations
1560 DATA 1,2,3,4,5,6,7,8,9,1,4,
7,2,5,8,3,6,9,1,5,9,3,5,7
1570 REM Jingles
1580 DATA1,0,100,8,96,8,100,8,80
,8,116,7,-1,1,116,6,108,2,100,8,-
9
1590 DATA1,0,136,2,124,2,108,3,-
1,1,108,3,-1,1,108,2,116,2,124,2,
128,2,136,3,-1,1,136,3,-1,1,136,4
,124,4,108,4,-9
1600 DATA1,0,108,1,-1,1,108,1,-1
,1,108,3,-1,1,108,1,-1,1,108,1,-1
,1,108,3,-1,1,108,1,-1,1,108,1,-1
,1,128,4,136,4,144,4,108,1,-1,1,1
08,1,-1,1,108,3,-1,1,108,1,-1,1,1
08,1,-1,1,128,3,-1,1,144,1,-1,1,1
44,1,-1,1,136,4,124,4,108,4,-9
1610 DATA1,0,128,6,116,2,100,8,1
16,8,128,8,148,16,164,6,156,2,148
,8,116,8,124,4,128,1,124,1,116,1,
124,1,128,8,-9
1620 DATA1,10,80,4,100,4,116,2,1
00,2,80,4,116,4,100,4,116,2,100,2
,80,4,116,4,100,4,116,2,100,2,80,
4,100,4,116,8,100,2,-9
1630 DATA1,-10,80,8,100,5,-1,1,1
00,1,-1,1,100,16,80,8,108,5,-1,1,
96,1,-1,1,100,16,-9
1640 DATA1,5,100,8,108,6,96,2,10
0,2,96,2,100,2,108,2,116,2,108,2,
116,2,120,2,128,4,-1,4,96,8,100,2
,-9
1650 DATA 1,0,100,6,116,2,128,4,
148,4,164,4,156,4,148,4,136,4,124
,4,128,2,-9
1660 DATA .8,-20,116,7,-1,1,116,
7,-1,1,116,7,-1,1,100,23,-1,1,108
,7,-1,1,108,7,-1,1,108,7,-1,1,96,
23,-1,1,88,7,-1,1,88,7,-1,1,100,7
,-1,1,116,7,-1,1,116,3,-1,1,100,3
,-1,1,84,7,-1,1,88,24,-9
1670 DATA 1,-10,148,7,-1,1,144,5
,-1,1,136,1,-1,1,128,3,-1,1,116,3
,-1,1,100,3,-1,1,116,3,-1,1,128,3
,-1,1,128,2,136,2,128,3,-1,1,128,
2,136,2,128,8,-9
1680 DATA .8,0,100,7,-1,1,100,7,
-1,1,128,7,-1,1,128,7,-1,1,136,4,
144,4,148,4,136,4,128,16,120,7,-1
,1,120,7,-1,1,116,7,-1,1,116,7,-1
,1,108,7,-1,1,108,7,-1,1,100,8,-9
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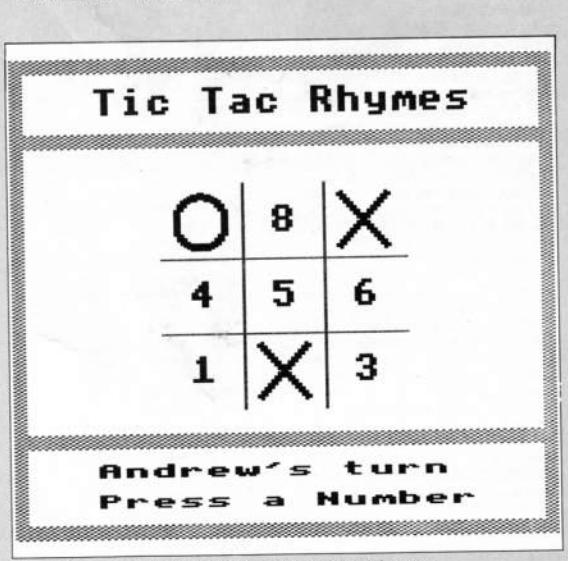


Figure II: After entering the correct word you can play naughts and crosses

Adventures

By Pendragon

Time to reflect on milestones passed

THE time of year is upon us when it is getting too hot to joust and too late to ride a boar hunt. So what better idea than to sit in the cool of the unwashed castle and tackle a few old adventures that have been gathering dust on my shelves these years past.

If we look back over the last six years of the Electron's existence we can verily glory in the daze of text adventures which have been released for this 32k beauty. As each year passed adventure milestones were created which pushed the Electron just a little further beyond its limits.

Names which spring to mind must include the eternal Sphinx Adventure, which though annoyingly fiddly set a standard and still proves popular among Electron adventurers to this day. Another gem is the adaptation of the Crowther and Woods colossal cave, Classic Adventure. Though somewhat under-developed and including bugs, it remains as its title suggests, a classic.

Other pinnacles include the quirky Woodbury End. Epic marvels such as Wheel of Fortune and The Lost Crystal and Robico masterpieces like Myorem, Village of Lost Souls and Enthar Seven.

This treasure trove of games – many are still available – is reflected in the latest Reader's Top Twenty printed overleaf which includes adventures spreading over the entire era. I compile the chart by averaging readers' votes sent in for any text adventure available for the standard 32k Electron.

The next chart should appear in the December issue of *Electron User*, so if you wish to vote for your favourite adventure please do so by giving marks out of 10 for originality, atmosphere, parser, complexity and value for money.

I have just received a scroll from Foxsoft Adventures to state the following price points affect I Spy Red, The Quest for the Golden Wombat and The Mathews Murder: 3.5in disc version £5.50, 5.25in disc version £4.99, tape version £4.95.

I have also received a missive from Sodasoft to say that its first adventure release for the Electron will be titled The Genesis Project. This is further to the news I imparted in the March 1989 issue of *Electron User*.

A further piece of parchment arrived from trusty Bill Trevelyan who explained the reason for the problems I had with the Potter Adventures' parser. Apparently the adventure only deciphered the first three letters of a command as a verb and the last three as a noun.

Hence my problem with TAKE COINS compared to the accepted TAKE COIN. The program would read TAK INS rather than TAK OIN. But of course that method would also fail with a command such as OPEN THROTTLE which would be deciphered as OPEN BOTTLE ... ho hum thank goodness for advanced parsers!

One of my Knights of the Round Table – Dragonrider Sir David Shepardson – has recently asked me to mention to the lady who rang him for help with Sphinx Adventure that his phone number is now ex-directory. Therefore could the lady concerned mail my castle with her query concerning the game and I will pass it immediately to David.

Finally, this month's featured map is of the opening scenario to Woodbury End. This should hopefully help many adventurers who are stuck at the outset of this unique experience in graphic/text adventuring. Next month I continue this series with a guide to the openings to Philosopher's Quest.

● *That's it for this month, so until the dust clogs the keys, happy adventuring.*

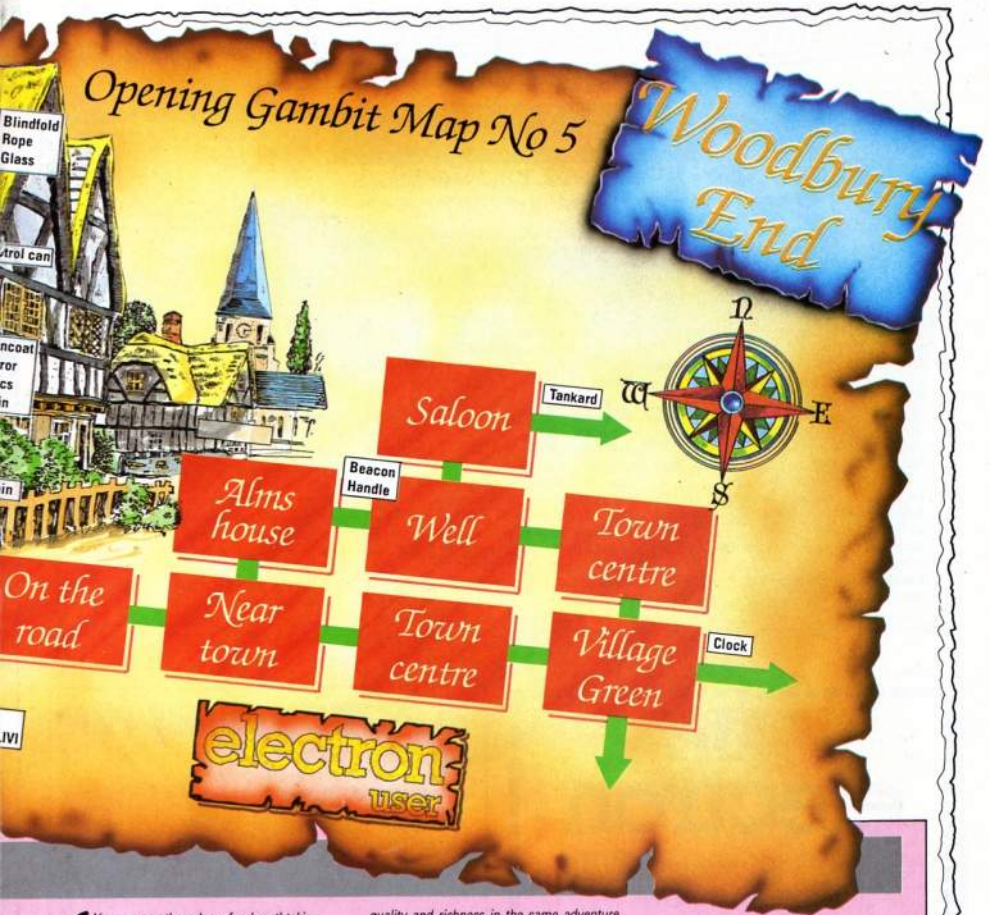
Overture and Beginners

During the past two and a half years I have explained the processes of getting started, mapping an adventure, puzzle solving, overcoming dead ends, mazes, parsers and have provided an extensive glossary of adventuring terms.

Now let's look at the bare bones of what goes into producing a good adventure. The better ones provide rich and finely honed text, rather like a good novel. One of the best – and earliest – ever written is the famous Colossal Cave by Crowther and Woods. This is available for the Electron in two forms: The already mentioned Classic Adventure and Level 9's superb Colossal Adventure (for 64k Electrons only).

The descriptions in this classic fantasy are some of the finest in adventuredom. To illustrate the excellence of this and to show the sort of standard you should be looking for in a quality adventure, read this excerpt from Colossal Adventure:

Opening Gambit Map No 5



You are on the edge of a breathtaking view. Far below you is an active volcano from which great gouts of molten lava come surging out, cascading back down into the depths. The glowing rock fills the farthest reaches of the cavern with blood-red glare, giving everything an eerie macabre appearance.

The air is filled with flickering sparks of ash and a heavy smell of brimstone. The walls are hot to the touch, and the thundering of the volcano drowns out all other sounds. Embedded in the jagged roof far overhead are myriad twisted formations composed of pure white alabaster which scatter the murky light into sinister apparitions upon the walls.

To one side is a deep gorge filled with a bizarre chaos of tortured rock which seems to have been crafted by the devil himself.

And there is much, much more of similar quality and richness in the same adventure and others from the Level 9 stable.

Narrative quality is not the only element that goes to make up a good adventure. Topography is significant too, and must be consistent both with the rest of the contents of the adventure and within itself.

For instance, if you leave a dungeon via the North door and arrive in a murky chamber, you would expect to find yourself back in the dungeon if you exit via the South door.

Similarly, if you have scrambled down a slippery slope it does not necessarily follow that you should be able to go up again without some difficulty. Perhaps a rope tied round a boulder at the top may assist.

As another example, if you've cut a hole in a sheik's tent in order to escape, you should expect to find it still there if you return. If it had been repaired you would expect some explanation to be proffered if credibility is to be maintained.

Logic and consistency in topography is critical if the atmosphere is to be sustained and your enjoyment is not to be marred by illogicalities. Unfortunately, this is all too often the case with badly developed adventures.

Another element of good workmanship is the inclusion of plenty of interesting incidents and events. A static adventure, no matter how vibrant the text or how imaginative the land, can be a bore. This further example from Colossal Adventure should give you some idea of what I mean: "A little dwarf just walked round the corner, saw you, threw a little axe at you which missed, cursed and ran away".

Next month we will look at how a plot is created to sustain interest and make your quest enjoyable and most of all believable.

Turn to Page 26 ►

◀ From Page 25

Readers' Hall of Fame

Blood of the Mutineers – *Ray Bray*
This solution provides specific answers to individual incidents and obstacles in the game.
Table: Push it against the door in the cabin, then clamp it to the door using the irons.
Tricorn: Put the candle in it, wear it to initially climb the arm, then put it on the bolster.
Hanky: Put it in the colander, then wear the colander when climbing the ledge near the river. Also spit on the hanky and use it to polish the platter.
Candle: Put it in the tricorn. The candle is also used to rub on the boat pulleys.
Irons: Used to clamp the table to the door.
Arm: Used for climbing the rail from the cabin window. It is later found in the sea and can be used to help climb the ledge.
Map: Found in the secret drawer in the bed. Read it at the pool on the island.
Key: Opens the cabinet in the sleeping quarters.
Bolster: Found on the bunk. Dress it with the coat and tricorn to make a dummy.
Cook: Search him for the flour bag and the colander.
Flour bag: Used with the colander to scare Tom from the crow's nest.
Colander: As above but also must be worn to get past the brambles and to carry the hanky up the river ledge.
Spyglass: Fit the large lens first. Use at sea to find the arm and land.
Large lens: Used with the spyglass but also to light the wood at the bear's cave entrance.
Pulleys: On the deck and in the boat. They squeak, so use the candle to wax them.
Shrub: Cut away with the cutlass.
Boots: Remove them and use in the boat when it fills with water.
Cutlass: Carried from the start. Its uses are with the shrub and the snake.
Snake: It is in the lime tree. Throw the cutlass at it from above.
Brambles: Wear everything – including the colander – to get through them.
Boar: Follows you in the forest. Follow the map route and lose it at the rope bridge.
Lime: Eat it to stop your gums feeling sore.
Bear: Enter the cave. Wait until the whetstone is revealed. Then get the whetstone, go West and light the wood.
Wood: Found at the cove when the boat smashes up. Drop the wood at the bear's cave entrance and light it on exiting.
Whetstone: Used to sharpen the cutlass.
Varan: Go up the tower in the courtyard. When Varan is in the North, push the statue. Go back and examine Varan for the star.
Tapestry: In the tower. get it to reveal the door.
Treasures: Ring, necklace, gold and the coin. Search the treasure to find the platter. Then polish it with the hanky and use it to signal from the top of the tower.

Readers' Top Twenty

1	Blood of the Mutineers	Robico	94%
2	Enthar Seven	Robico	93%
3	Twin Kingdom Valley	Bug-Byte	92%
4	The Lost Crystal	Epic	90%
5	In Search of Atahaulpa	Lee	88%
6	Axe of Kolt	E.A.C.	87%
7	Stranded!	Heyley	86%
8	Village of Lost Souls	Robico	84%
9	Dreamtime	Heyley	83%
10	Hex	Larsoft	80%
11	The Taroda Scheme	Heyley	79%
12	Suds	Riverdale	78%
13	American Suds	Riverdale	76%
14	Project Thesius	Robico	75%
15	Dodgy Geezers	Melbourne	74%
16	Wheel of Fortune	Epic	70%
17	Sphinx Adventure	Acornsoft	68%
18	The Nine Dancers	Larsoft	66%
19	Myorem	Robico	63%
20	Woodbury End	Shards	61%

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Arcade Game Creator is a suite of programs for the Electron and BBC Micros. Taken from the pages of *Electron User*, it lets you into the secrets of writing fast-action arcade games, and provides you with a number of utilities to make design and programming easier.

Among the programs are:

- A Mode 5 sprite editor that lets you design your own multi-coloured characters.
- A selection of fast print routines that will move sprites both in front or behind other objects on the screen.
- Map generators that will squeeze a Mode 5 screen into 8 bytes!
- Scrolling maps.
- Score update and printing routines.

. . . and much, much more.

To help you make the most of the Arcade Game Creator, you will also get a comprehensive manual based on the original series.

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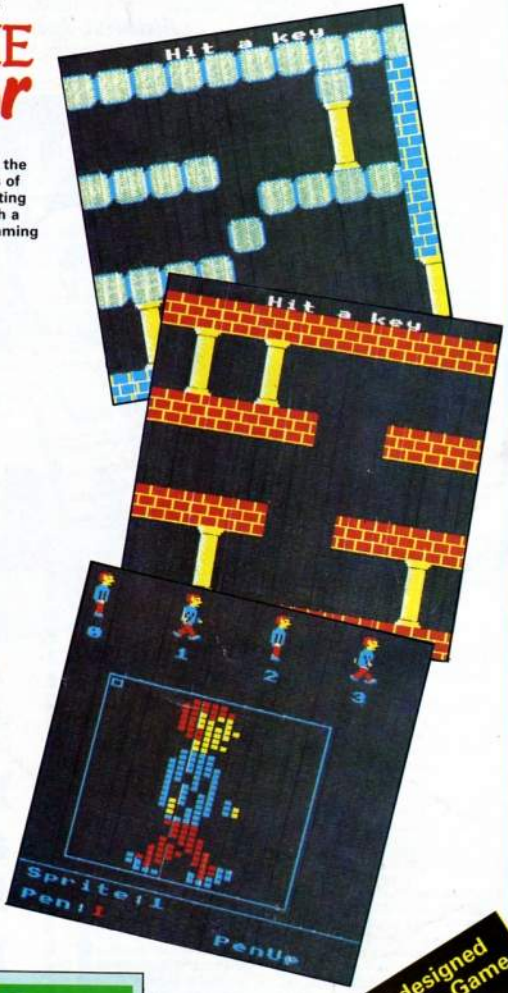
If you are an aspiring games programmer, this is an offer you simply cannot afford to miss!



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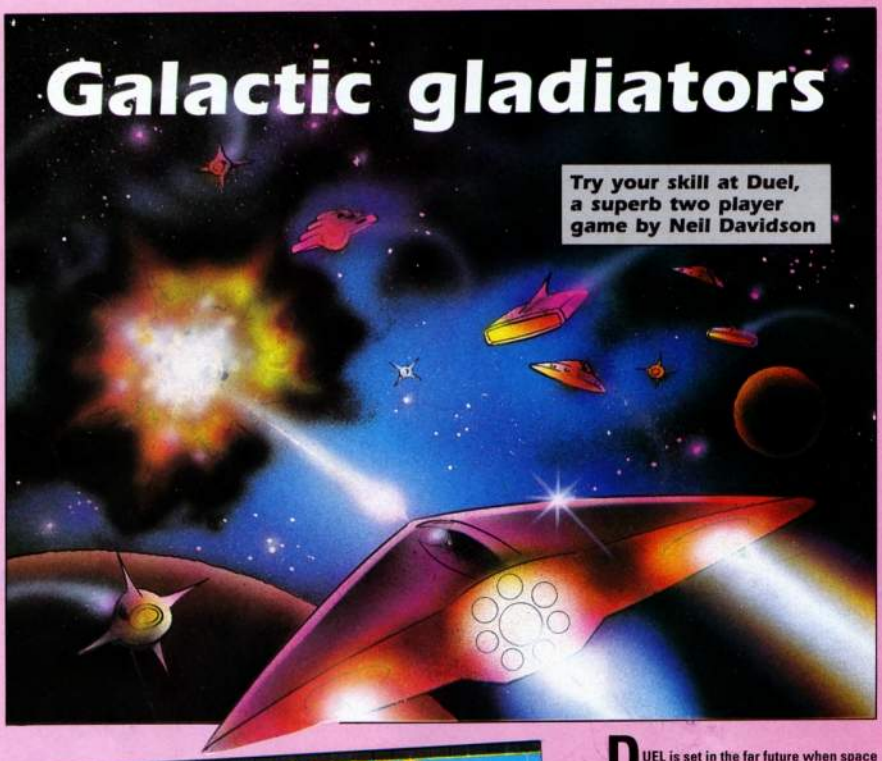
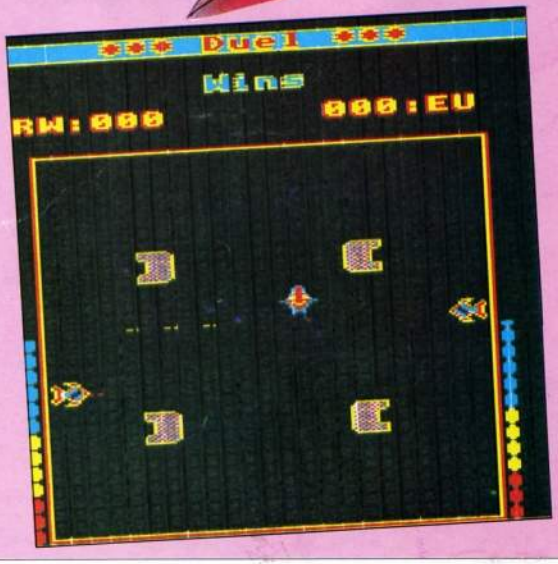
Galactic gladiators

Try your skill at Duel, a superb two player game by Neil Davidson





DUEL is set in the far future when space gladiators battle between the stars in their specially made space ships. In this two player game your spaceship is located on the left of the screen while your opponent's is on the right. Between you is empty space and a few harmless asteroids.

You can move your ship up and down using the A and Z keys and Control is used to fire laser bolts at the enemy on the other side of the screen. He uses the *, ? and Return keys. Force shields which surround both ships protect them from laser bolts, but their power is limited, as shown at the sides of the screen.

You can hide behind the asteroids for protection, but not for too long as it is possible to shoot holes in them. However, this is a dangerous ploy too, as your laser bolts may bounce back at you at first. Also watch out for passing flying saucers that fire indiscriminately. If you try to blast them with laser bolts they'll bounce them back at you.

CONTROLS

	Player 1	Player 2
Up	A	*
Down	Z	?
Fire	Control	Return

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◀ From Page 29

```
  10 REM Duel
  20 REM By Neil Davidson
  30 REM (c) Electron User
  40 MODE6:*FX16
  50 IF PAGE>&E00 GOTO 3020
  60 VDU23;8202;0;0;0;
  70 PRINT''FNc("Duel")'FNc("===
=")''FNc("Neil Davidson,for Elect
ron User 1989")''FNc("Player one
       Player two")''FNc("A
-  Up  -       :")'FNc("Z      - Dow
n -      /")'FNc("  Ctrl   - Fire
 -  Return")
  80 VDU28,0,23,39,15
  90 PRINTTAB(0,3);FNc("Wait a s
ec ...")
 100 W1%=0:W2%=0
 110 *FX229,1
 120 VDU23,224,&60,&F0,&F0,&F0,&
F0,&F0,&60,0
 130 VDU23,225,&6,&F,&F,&F,&F,&F
,&6,0
 140 VDU23,226,&FFFF;&FFFF;&FFFF
;&FFFF;
 150 ENVELOPE 1,128,-10,10,-15,1
,3,5,0,0,0,0,0,0
 160 ENVELOPE2,1,2,0,-1,2,0,4,12
6,0,0,-126,126,126
 170 ch=&900
 180 x1=2:x2=33
 190 DIMch(5)
 200 PROCdata
 210 PROCassem
 220 *FX21
 230 CLS
 240 PRINTTAB(8,3);"Player one's
 initials :";:n1$=FNinput
 250 CLS:PRINTTAB(8,3);"Player t
wo's initials :";:n2$=FNinput
 260 MODE5
 270 VDU19,3,4;0;
 280 VDU23;8202;0;0;0;
 290 PROCset
 300 REPEAT
 310 VDU26
 320 COLOUR128:PRINTTAB(0,5);STR
ING$(40," ")
 330 PROCprt(0,5.5,n1$+":"+RIGHT
$("000"+STR$W1%,3),1,2):PROCprt(1
2,5.5,RIGHT$("000"+STR$W2%,3)+":"
+n2$,1,2)
 340 VDU28,1,30,17,8:COLOUR128
 350 PROCprt(3,17,"Countdown:",1
,2)
 360 FORT%=5 TO 1 STEP-1
 370 PRINTTAB(13,9);" ";TAB(13,8
);" "
 380 PROCprt(14,17,STR$T%,1,2)
 390 TIME=0:REPEATUNTILTIME>=100
 400 NEXT
 410 CLS:VDU26
 420 PROCengy(0,224):PROCengy(18
,225)
 430 GCOL0,1:PROCbox(44,4,1168,7
72):GCOL0,2:PROCbox(52,8,1160,768
)
 440 CALLgame
 450 *FX21
 460 SOUND1,2,50,10:SOUND1,2,60,
10:SOUND1,2,30,10
 470 VDU28,1,30,17,8:COLOUR128:C
LS
 480 IF?oops=0 PROCprt(5,12,"Sui
cide!",3,1):GOTO510
 490 IFeg1?2=0 OReg1?2>200 W2%=W
2%+1:n$=n2$ ELSEn$=n1$:W1%=W1%+1
 500 PROCprt(4,12,n$+" Wins!",3,
1)
 510 UNTILO
 520 END
 530 DEFFNc(m$):PRINTTAB(20-LENm
$/2,VPOS);:=m$
 540 DEFPROCset
 550 CLS
 560 COLOUR131
 570 PROCprt(0,1,STRING$(20,CHR$
226),2,3)
 580 PROCprt(7.5,3.5,"Wins",2,3)

 590 PROCprt(3.5,1,"*** Duel ***
",2,1)
 600 ENDPROC
 610 DEFPROCengy(X%,C%)
 620 COLOUR3:FORY%=19 TO 24:PRIN
TTAB(X%,Y%);CHR$C%:NEXT
 630 COLOUR2:FORY%=25 TO 28:PRIN
TTAB(X%,Y%);CHR$C%:NEXT
 640 COLOUR1:FORY%=29 TO 31:PRIN
TTAB(X%,Y%);CHR$C%;:NEXT
 650 ENDPROC
 660 DEFFNinput
 670 A$="":REPEAT:G=GET:H=G AND
223
 680 IFH>(ASC"A"-1) AND H<(ASC"Z
"+1) AND LENA$<3 A$=A$+CHR$H:PRIN
T;CHR$H;
 690 IFG=127 ANDA$>"" A$=LEFT$(A
$,LENA$-1):VDU127
 700 UNTILG=13
 710 =A$
 720 DEFPROCprt(X,Y,MS,A%,B%)
 730 X%=X*64:Y%=1024-Y*32:GCOL0,
A%:VDU5:MOVEX%-8,Y%-4:PRINTMS:MOV
EX%-8,Y%+4:PRINTMS:MOVEX%,Y%+4:PR
INTMS:MOVEX%,Y%-4:PRINTMS
 740 GCOL0,B%:MOVEX%,Y%:PRINTMS:
VDU4:ENDPROC
 750 DEFPROCbox(A,B,C,D)
 760 MOVEA,B:DRAWC,B:DRAWC,D:DRA
WA,D:DRAWA,B:ENDPROC
 770 DEFPROCassem
 780 co=&70
 790 oldd=&72:oldd2=&74
 800 st2=&76
 810 st=&7A
 820 eg1=&7C
 830 eg2=&7F
 840 DIMQ% 5000
 850 FORI=0 TO2 STEP2
 860 P%=Q%
 870 [OPTI
 880 .lev EQU80
 890 .barset
 900 LDA#&C8:STAst2:LDA#&69:STAs
t2+1
 910 LDA#&48:STAst2+2:LDA#&6A:ST
Ast2+3
 920 LDA#2:STAc:.loop
 930 LDAst2:STAoldd2:LDAst2+1:ST
Aoldd2+1:LDA#ch(4) MOD 256:STAold
d:LDA#ch(4) DIV 256:STAoldd+1:JSR
print
 940 LDAst2+2:STAoldd2:LDAst2+3:
STAoldd2+1:LDA#ch(5) MOD 256:STAo
ldd:LDA#ch(5) DIV 256:STAoldd+1:J
SRprint
 950 CLC:LDAst2:ADC#&8O:STAst2:L
DAst2+1:ADC#&C:STAst2+1
 960 CLC:LDAst2+2:ADC#&8O:STAst2
+2:LDAst2+3:ADC#&C:STAst2+3
 970 DECc:BNEloop
 980 RTS
 990 .game
1000 JSRinit
1010 JSRbarset
1020 LDA#O:STAalpos+1
1030 .loop
1040 JSRkeys1:JSRkeys2
1050 LDA&240:.frm CMP&240:BEQfrm
1060 JSRpr1:JSRpr2
1070 INCc:LDAc:CMP#3:BNEnnowt:LD
A#O:STAc:JSRalmv:.nnowt
1080 LDAalpos+1:BNEninit:LDA#255
:JSRrnd:CMP#2:BCSninit:JSRalinit:
.ninit
1090 JSRmvbul
1100 LDAoops:BNEfinish
1110 LDX#(-113 AND &FF):JSRky:BN
Eloop
1120 .finish
1130 RTS
1140 .dec1
1150 LDY#O:LDA#O:STA(eg1),Y
1160 DECeg1+2
1170 BEQeofg:LDAeg1:AND#7:CMP#7:
BNEgen1:CLC:LDAeg1:ADC#&38:STAeg1
:BCCjkl:INCeg1+1:.jkl INCeg1+1:.g
en1
1180 INCeg1:BNEjkl2:INCeg1+1:.jk
l2 RTS
1190 .eofg LDA#1:STAoops:RTS
1200 .dec2
1210 LDY#O:LDA#O:STA(eg2),Y
1220 DECeg2+2
1230 BEQeofg:LDAeg2:AND#7:CMP#7:
BNEgen2:CLC:LDAeg2:ADC#&38:STAeg2
.BCCjkl3:INCeg2+1:.jkl3 INCeg2+1:
.gen2
1240 INCeg2:BNEjkl4:INCeg2+1:.jk
l4 RTS
1250 .oops EQUBO
1260 .init
1270 LDA#O:STAc
1280 STAoops
1290 LDY#6O:LDA#O:.loop STAbull-
1,Y:DEY:BNEloop
1300 LDA#8O:STAy1:LDA#12O:STAy2
1310 LDA#9O:STApos1:LDA#&64:STA
pos1+1:JSRpr1
1320 LDA#&C8:STApos2:LDA#&6B:STA
pos2+1:JSRpr2
1330 LDA#&CO:STAeg1:LDA#&6F:STAe
g1+1:LDA#&E8:STAeg2:LDA#&7O:STAeg
2+1:LDA#1O4:STAeg1+2:STAeg2+2
1340 RTS
1350 .c EQUBO
1360 .print2 LDA#5:STAcnt+1:STAs
t:LDA#&18:STAst+1:JMPprq2
1370 .print
1380 LDA#3:STAcnt+1:STAst:LDA#&2
8:STAst+1:.prq2 LDA#2:STAcnt+2
1390 LDAoldd2:STAco:LDAoldd2+1:S
TAco+1
1400 LDY#O:LDX#O
1410 .loop2
1420 LDA#8:STAcnt
1430 .loop
1440 LDA(oldd),Y:STA(oldd2),Y
1450 INColdd:BNEn1:INColdd+1:.n1
1460 LDAoldd2:AND#7:CMP#7:BNEn7
1470 CLC:LDAoldd2:ADC#&38:STAold
d2:BCCn2:INColdd2+1:.n2 INColdd2+
1:.n7
1480 INColdd2:BNEn3:INColdd2+1
1490 .n3
1500 DECcnt:BNEloop
1510 CLC:LDAco:ADC#8:STAco:STAol
dd2:BCCn8:INCco+1:.n8 LDAco+1:STA
oldd2+1
1520 DECcnt+1:BNEloop2
1530 CLC:LDAco:ADCst+1:STAco:STA
oldd2:BCCn9:INCco+1:.n9 INCco+1:L
DAco+1:STAoldd2+1
1540 LDAst:STAcnt+1:DECcnt+2:BNE
loop2
1550 RTS
1560 .rnd STA&2A:LDA#O:STA&2B:ST
A&2C:STA&2D:JSR&AF12:LDA&2A:RTS
1570 .cnt EQUDO
1580 .t1 EQUWO
1590 .y1 EQUBO:.y2 EQUBO
1600 .pos1 EQUWO:.pos2 EQUWO
1610 .ky LDA#129:LDY#&FF:JSR&FFF
4:CPY#&FF:RTS
1620 .keys1
1630 LDX#(-2 AND &FF):JSRky:BNEn
f1
1640 LDAc:BNEnf1
1650 JSRfr1:BEQnf1:JSRdec1:LDA#1
:LDX#1O:LDY#1:JSRsnd:.nf1
1660 LDX#(-66 AND &FF):JSRky:BNE
nu1
1670 LDAy1:CMP#7O:BCCnu1
1680 DECy1
1690 LDApos1:AND#7:CMP#O:BNEn71
1700 SEC:LDApos1:SBC#&38:STApos1
:BCSj:DECpos1+1:.j DECpos1+1:.n71
1710 SEC:LDApos1:SBC#1:STApos1:B
CSk:DECpos1+1:.k
1720 RTS:.nu1
1730 LDX#(-98 AND &FF):JSRky:BNE
nd1
1740 LDAy1:CMP#230:BCSnd1
1750 INCy1
1760 LDApos1:AND#7:CMP#7:BNEn72
1770 CLC:LDApos1:ADC#&38:STApos1
:BCCl:INCpos1+1:.l INCpos1+1:.n72
1780 INCpos1:BNEm:INCpos1+1:.m
1790 .nd1 RTS
1800 .keys2
1810 LDX#(-74 AND &FF):JSRky:BNE
nf2
1820 LDAc:BNEnf2
1830 JSRfr2:BEQnf2:JSRdec2:LDA#1
```

```
:LDX#10:LDY#1:JSRsnd:.nf2
 1840 LDX#(-73 AND &FF):JSRky:BNE
nu2
 1850 LDAy2:CMP#70:BCCnu2
 1860 DECy2
 1870 LDApos2:AND#7:CMP#0:BNEn73
 1880 SEC:LDApos2:SBC#&38:STApos2
:BCSj2:DECpos2+1:.j2 DECpos2+1:.n
73
 1890 SEC:LDApos2:SBC#1:STApos2:B
CSk2:DECpos2+1:.k2
 1900 RTS:.nu2
 1910 LDX#(-105 AND &FF):JSRky:BN
End2
 1920 LDAy2:CMP#230:BCSnd2
 1930 INCy2
 1940 LDApos2:AND#7:CMP#7:BNEn74
 1950 CLC:LDApos2:ADC#&38:STApos2
:BCCl2:INCpos2+1:.l2 INCpos2+1:.n
74
 1960 INCpos2:BNEm2:INCpos2+1:.m2
 1970 .nd2
 1980 RTS
 1990 .pr1 LDApos1:STAoldd2:LDApo
s1+1:STAoldd2+1:LDA#ch(0) MOD 256
:STAoldd:LDA#ch(0) DIV 256:STAold
d+1:JMPprint
 2000 .pr2 LDApos2:STAoldd2:LDApo
```

```
s2+1:STAoldd2+1:LDA#ch(1) MOD 256
:STAoldd:LDA#ch(1) DIV 256:STAold
d+1:JMPprint
 2010 .fire STXco
 2020 .loop
 2030 LDAbull,Y:BNEnloop
 2040 LDAb2:STAbull,Y:LDAb2+1:STA
bull+1,Y:LDAb2+2:STAbull+2,Y:STAo
ldd2:LDAb2+3:STAbull+3,Y:STAoldd2
+1:LDAb2+4:STAbull+4,Y
 2050 LDAb2+5:STAbull+5,Y:LDY#0:S
TAoldd2),Y
 2060 LDA#1:RTS:.nloop
 2070 CLC:TYA:ADC#6:TAY
 2080 CPYco:BNEloop:LDA#0:RTS
 2090 .bull EQUS STRING$(60," ")
 2100 .b2 EQUDO:EQUBO:EQUBO
 2110 .mvbul
 2120 LDY#0:.loop
 2130 STYt1
 2140 LDAbull,Y:BNEnnlp2:JMPnlp2:
.nnlp2
 2150 LDAbull+4,Y:BNEnlft
 2160 LDAbull+2,Y:STAco:LDAbull+3
,Y:STAco+1:STYt1:LDAbull+5,Y:LDY#
0:LDA#0:STA(co),Y:LDYt1
 2170 LDAbull,Y:CMP#2:BNEnnlp3:LD
A#0:STAbull,Y:JMPnlp2:.nnlp3
 2180 SEC:LDAbull,Y:SBC#1:STAbull
,Y
 2190 SEC:LDAbull+2,Y:SBC#B:STAbu
ll+2,Y:LDAbull+3,Y:SBC#0:STAbull+
3,Y
 2200 LDAbull+2,Y:STAco:LDAbull+3
,Y:STAco+1:STYt1:LDY#0:LDA(co),Y:
BEQncor:JSRcorrt:JMPnlp2:.ncor LD
Yt1:LDAbull+5,Y:LDY#0:STA(co),Y:L
DYt1
 2210 JMPnrt
 2220 .nlft
 2230 LDAbull+2,Y:STAco:LDAbull+3
,Y:STAco+1:STYt1:LDAbull+5,Y:LDY#
0:LDA#0:STA(co),Y:LDYt1
 2240 LDAbull,Y:CMP#35:BNEnend
 2250 LDA#0:STAbull,Y:JMPnlp2:.ne
nd
 2260 CLC:LDAbull,Y:ADC#1:STAbull
,Y
 2270 CLC:LDAbull+2,Y:ADC#8:STAbu
ll+2,Y:LDAbull+3,Y:ADC#0:STAbull+
3,Y
 2280 LDAbull+2,Y:STAco:LDAbull+3
,Y:STAco+1:STYt1:LDY#0:LDA(co),Y:
BEQncor2:JSRcorrt:JMPnlp2:.ncor2
LDYt1:LDAbull+5,Y:LDY#0:STA(co),Y
:LDYt1
 2290 .nrt:.nlp2
 2300 CLC:TYA:ADC#6:TAY
 2310 CPY#60:BEQnlp:JMPloop:.nlp
 2320 RTS
 2330 .fr1
 2340 LDA#(x1+3):STAb2:CLC:LDAy1:
ADC#6:STAb2+1:CLC:LDApos1:ADC#&58
:STAb2+2:LDApos1+1:ADC#1:STAb2+3:
LDA#1:STAb2+4:LDY#0:LDX#18:LDA#&B
:STAb2+5:JSRfire:RTS
 2350 .fr2
 2360 LDA#(x2-1):STAb2:LDAy2:CLC:
ADC#6:STAb2+1:INCb2+1:CLC:LDApos2
:ADC#&38:STAb2+2:LDApos2+1:ADC#1:
STAb2+3:LDA#0:STAb2+4:LDA#&D0:STA
b2+5:LDY#18:LDX#36:JSRfire:RTS
 2370 .corrt
 2380 LDYt1:LDAbull,Y:CMP#x1:BCCn
col
 2390 SEC:SBC#3:CMP#x1:BCSncol
 2400 LDAbull+1,Y:CMPy1:BCCncol
 2410 SEC:SBC#16:CMPy1:BCSncol
 2420 LDA#0:STAbull,Y
 2430 JSRdec1:JSRdec1:JSRdec1:JSR
dec1
 2440 LDA#0:LDX#100:LDY#3:JSRsnd
 2450 LDY#0
 2460 RTS
 2470 .ncol
 2480 LDAbull,Y:CMP#x2:BCCncol2
 2490 SEC:SBC#3:CMP#x2:BCSncol2
 2500 LDAbull+1,Y:CMPy2:BCCncol2
 2510 SEC:SBC#16:CMPy2:BCSncol2
 2520 LDA#0:STAbull,Y
 2530 JSRdec2:JSRdec2:JSRdec2:JSR
dec2
 2540 LDA#0:LDX#100:LDY#3:JSRsnd
 2550 LDY#0:RTS
 2560 .ncol2
 2570 LDAbull+4,Y:EOR#1:STAbull+4
,Y
 2580 LDA#1:LDX#100:LDY#1:JSRsnd
 2590 LDY#0
 2600 RTS
 2610 .alpos EQUW0
 2620 .alx EQUB0:.aly EQUB0
 2630 .alinit
 2640 LDA#10:JSRrnd:CLC:ADC#12:ST
Aalx:ASLA:ASLA:CLC:ADC#&40:S
TAalpos:LDA#&63:ADC#0:STAalpos+1:
LDA#72:STAaly
 2650 RTS
 2660 .almv
 2670 LDAalpos+1:BEQnmv
 2680 LDA#255:JSRrnd:CMP#10:BCSns
ht:JSRalfr:JMPnsht2:.nsht JSRaldn
:.nsht2
 2690 LDAalpos+1:CMP#&7B:BCSdie
 2700 LDA#ch(3) MOD 256:STAoldd:L
DA#ch(3) DIV 256:STAoldd+1:LDAalp
os:STAoldd2:LDAalpos+1:STAoldd2+1
:JSRprint
 2710 .nmv
 2720 RTS
 2730 .die LDAalpos:STAoldd2:LDAa
lpos+1:STAoldd2+1:LDA#ch(2) MOD 2
56:STAoldd:LDA#ch(2) DIV 256:STAo
ldd+1:JSRprint:LDA#0:STAalpos+1:R
TS
 2740 .aldn LDAalpos:AND#7:CMP#7:
BNEhg:CLC:LDAalpos:ADC#&38:STAalp
os:LDAalpos+1:ADC#1:STAalpos+1:.h
g INCalpos:BNEgh:INCalpos+1:.gh I
NCaly:RTS
 2750 .alfr LDAalx:CLC:ADC#3:STAb
2:CLC:LDAaly:ADC#6:STAb2+1:CLC:LD
Aalpos:ADC#&58:STAb2+2:LDAalpos+1
:ADC#1:STAb2+3:LDA#1:STAb2+4:LDX#
60:LDY#36:LDA#&FO:STAb2+5:JSRfire
 2760 LDAalx:SEC:SBC#1:STAb2:CLC:
LDAaly:ADC#6:STAb2+1:CLC:LDAalpos
:ADC#&38:STAb2+2:LDAalpos+1:ADC#1
:STAb2+3:LDA#0:STAb2+4:LDX#60:LDY
#36:LDA#&FO:STAb2+5:JSRfire:RTS
 2770 RTS
 2780 .mksnd:.chn EQUW0:EQUB1:EQU
B0:.ptch EQUW0:.len EQUW0
 2790 .snd
 2800 STAchn:STXptch:STYlen
 2810 LDX#mksnd MOD 256:LDY#mksnd
 DIV 256:LDA#7:JMP&FFF1
 2820 ]
 2830 NEXT
 2840 ENDPROC
 2850 DEFPROCdata
 2860 RX=ch
 2870 FORX%=0 TO 71
 2880 READa$:!RX=EVAL("&"+a$)
 2890 RX=RX+4
 2900 NEXT
 2910 FORX%=0 TO 5
 2920 ch(X%)=X%*&30+ch
 2930 NEXT
 2940 ENDPROC
 2950 DATA 40000000,534396A4,43FO
0000,EEB75331,80000000,56244880,A
4964353,40,315395CC,F043,8048ACDE
,80
 2960 DATA 10000000,A6422110,2CF0
0000,77DEACC8,20000000,AC2C9652,1
02153B7,10,C8AC9A33,F02C,52962CAC
,20
 2970 DATA 0,0,0,0,0,0,0,0,0,0,0,
0
 2980 DATA 0,11110000,9F660000,96
0F9F9F,0,88880000,1123CF32,11,699
60F96,99FF9F0F,884C3FC4,88
 2990 DATA A7D7A7F0,10101071,AF5F
AFF0,AF5FAF5F,BE5EACCO,BE5EBE5E,6
1101010,F0D7A7D7,AF5FAF5F,F05FAF5
F,BE5EBE5E,C06CBE5E
 3000 DATA A7D76330,A7D7A7D7,AF5F
AFF0,AF5FAF5F,BE5EBEFO,80808068,A
7D7A7D7,3053A7D7,AF5FAF5F,F05FAF5
F,F8808080,F05EBE5E
 3010 DATA"Duel","====","","","Ne
il Davidson,for Electron User 198
9","","Player one          Player t
wo","A   - Up -   :","Z   - Down
-   /","Ctrl - Fire - Return"
 3020 *KEY0 *T.|MDX=PAGE-&EOO:FOR
 I%=PAGE TO TOP STEP4:!(I%-DX)=!I
%:NEXT:PAGE=&EOO|MOLD|MRUN|M
 3030 *FX138,0,128
```

SUPERIOR SOFTWARE
ACORNSOFT
PALACE of MAGIC
MAP 1
By Mark Hobbs.
objects
BOOST'S ENERGY.
HELPS PASS BISHOP (8,1).
HELPS PASS GUARDIAN (4,3).
PLACE AT (4,6) TO FILL WITH WATER. HELPS PASS FIREPIT (4,1).
LIGHTS DUNGEONS.
HELPS PASS MONSTERS AT DUNGEONS (7,6).
USE AT LOCATION OF KEY C TO CLIMB UP.
USE TO PASS KNIGHT (3,1)
GIVE TO BOY AT (8,1). SEE KNIFE BELOW.
USE AT LOCATION OF KEY H ON BASE.
HELPS TO JUMP DOUBLE-HEIGHT.
HELPS PASS IMP (6,1).
WHEN YOU GIVE THE BAR TO THE BOY, YOU WILL RECIEVE THE KNIFE. THIS CAN KILL SNAKES IN A LIMITED TIME. (WATCH COUNTER AT TOP OF SCREEN) USE AT (1,1).
West wood
East wood
Dungeons
The PALACE

PRES

TEL: 0276 72046
FAX: 0276 51427

Now available through PRES **Advanced Computer Products** range of software products

ADVANCED CONTROL PANEL

(20) /M/B/E/C **£30 ex VAT £34.50 inc VAT**

ACP is a front end control panel language providing a sophisticated yet friendly interface between user and computer for access to Languages. MOS functions and the users own file utility etc. Main features include pull down windows, simple to change MOS configure, floating point calculator, file manager, SW ROM's facilities

(16K EPROM & FULL MANUAL)

"Its very easy to create an entire customised front end for your own use." – *Acorn User, August 1987.*

"ACP is much better than any of the other front end systems I've seen." – *Acorn User, August 1987*

"I can recommend it to anyone who wants easy access to the Electron's functions." – *Electron User, August 1987.*

ACPs main features are:-

* Pull down windows operate throughout
* Users can create their own windows
* Simple to change MOS-s configure options
* Easy entry to other languages
* Floating point calculator
* File manager
* Floating point calculator

ADVANCED DISC TOOLKIT

(01) /M/B/E/C **£30 ex VAT £34.50 inc VAT**

Any Acorn user including Master, BBC B+, Electron, DFS, 1770 DFS, ADFS, 2nd & co-processors A.C.P.'s BEST SELLING product containing over 30 commands inc.: - powerful memory & disc editor, search memory/disc/basic, catalogue/unplug ROMS, load/run programs below page, automatic menu, file transfer (inc. locked cassette files), ADFS utils etc, etc ("it's superb",. . . Database Pubs. - "A top-class toolkit - I have no hesitation in recommending it. . . Acorn User Nov. 86)

(16K EPROM & FULL MANUAL)

ADVANCED ELECTRON DFS Eøø

(14) /E+ASR/ **£17.38 ex VAT £19.99 inc VAT**

An alternative to the DFS on rom for Plus 3 and ABR users. This optional alternative DFS is designed for use in Sideways RAM (ABR) and allows the user to operate a disc filing system &Eøø when using the Plus 3 (in ADFS page would normally be &1Døø). The DFS is simply loaded using the software supplied with the ABR from disc. (3.5" ADFS disc + manual)

ADVANCED ELECTRON DFS

(05) /E/ **£21.00 ex VAT £24.15 inc VAT**

Electron & Plus 3 users. . . gain BBC compatibility by adding the Advanced Electron DFS (1770 DFS) this is the same disc filing system supplied with the BBC B+. Now you can produce and access (compatible) BBC disc based software. We can also supply 5.25" disc drives to add to your Plus 3 (inc. 2nd. drive adapter). "ACP has produced another superb ROM for the Electron". . . Electron User Feb '86

(supplied on 16K EPROM + DFS MANUAL)

ADVANCED DISC INVESTIGATOR

(06) /M/B/E/C **£25 ex VAT £28.75 inc VAT**

A very powerful Disc utility for standard & non-standard discs. Backup most protected discs, edit any type of non-standard disc, check & repair faulty tracks, create new disc formats, copy 40 track discs to 80 track discs, verify two non-standard discs.

("ADI features an extremely comprehensive sector editor, and one of the finest I've seen". . . Tubelink on Prestel) (supplied on 16K EPROM + manual)

ADVANCED 1770 DFS

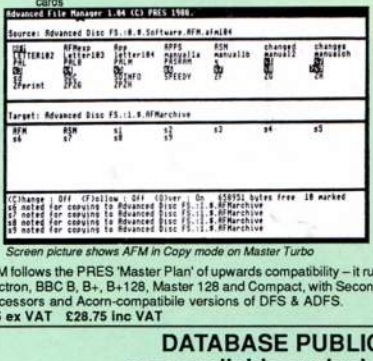
3 versions ADM/C(11) – ADB(12) ADE (13) **£30.00 ex VAT £34.50 inc VAT**

ACP have totally re-written the Acorn 1770 DFS, enhancing existing features & adding new ones. The result is a very fast and powerful disc filing system with the ability to operate in double density occupying both sides of a disc (640K). Automatic file relocation, improved file handling, 62 file catalogue and Sways RAM can be used as a fast RAM DISC. (16K EPROM + comprehensive manual)

PRES – ADVANCED FILE MANAGER

The ultimate 'front-end' for ADFS and DFS includes:

Menu – infinitely expandable
Delete – deletes any number of files
Rename – rename multiple files using wild-cards
Copy – extremely comprehensive file copier



Screen picture shows AFM in Copy mode on Master Turbo

AFM follows the PRES 'Master Plan' of upwards compatibility – it runs on Electron, BBC B, B+, B+128, Master 128 and Compact, with Second/Co-processors and Acorn-compatibile versions of DFS & ADFS.

£25 ex VAT £28.75 inc VAT

AFM has four distinct modes:

MENU – allows browsing through the files and directories on a disc. Files are started from a menu of up to 7 options chosen for a selected ROM. Loaders are provided for Basic, The Basic Editor, View, ViewSheet, ViewStore, ViewSpell, Edit, Wordwise (+) and InterWord. This list can be expanded infinitely using an Acorn-approved OSWORD call. . , full details and example in the manual..

DELETE – allows files to be marked and then deleted with one keystroke.

RENAME – allows one or more files to be marked and then renamed using a wildcarded name, ie one which varies with each file renamed. Thus you could rename s1, s2 and s3 to be s1_old, s2_old, and s3_old in one operation. . . and that's only the beginning! As well as using the whole of the original name you can also pick out individual characters to form part of the new name.

COPY – the strongest feature of AFM. It is a two stage copy routine. With both source and target directories shown on screen the files to be copied are marked. Once all the files have been marked copying is started and the computer can be left to get on with it!

Large files can be split across several disks, and recombined.

As much as possible of the computer's memory is used for copying files, including unused parts of shadow screen memory, sideways ram banks (inc. AP7), ram cartridges (inc. ABR (32K) and AQR (256K)), tube memory (up to 61K), B+ paged ram (12K) and unused parts of the Slogger Master Ramboard (Electron).

Comprehensive error trapping and recovery is provided, so a copying run will rarely have to be aborted unfinished! And there's much, much more.

DATABASE PUBLICATIONS: Electron software now available exclusively through PRES on 3.5" disc

Electron User 1988 Monthly Disc	£4.75	10 of the Best Vol 2	£6.95
Fun School	£5.95	10 of the Best Vol 3	£6.95
*Arcade Game Creator	£5.95	10 of the Best Vol 4	£6.95
Nursery Rhymes	£6.95	Classic Card & Board Games Vol 1	£7.95
10 of the Best Vol 1	£6.95	Classic Card & Board Games Vol 2	£7.95

Now available E.U. August '87 monthly disc - containing printer driver.
5.25" disc versions available only

*Arcade Game Creator	£5.95
Knitwear Designer	£9.95

PRES

THE ADVANCED PLUS 3 MK II

NEW NEW

The only fully compatible disc upgrade running Acorn's own filing system.The MK II is now supplied with 3.5" **DOUBLE SIDED** disc drive providing a storage capacity of 640K

OUR TOP SELLING PRODUCT

NEW IMPROVED

A.P.3. MK II gives you:

1. A fully Acorn compatible 1770 interface (Cartridge)
2. 80 track 3.5" disc drive, double sided (640K)
3. Separate PSU
4. Acorn ADFS
   Advanced Disc Filing System
5. Welcome disc
6. Utilities
7. Full documentation
8. All the advantages of the original Plus 3 PLUS extra ROM socket.

Undoubtedly the most popular disc upgrade system for the Electron (Requires Plus I)

Remember – 2nd drives (3.5 or 5.25) can be added and the AP3 drive can be used on a BBC or Master computer! Also most Electron disc-based software is supplied on 3.5" ADFS discs.

The only fully compatible disc upgrade running Acorn's own preferred filing system (supplied on: Plus 3, Master 128, Master Compact and now the Archimedes)

EXTRA BONUS

3 games on disc – SNAPPER – DRAUGHTS – REVERSI

COMPLETE PACKAGE ONLY

£129 excl VAT; £148.35 inc VAT

ADVANCED PLUS 5

A unique interface for those wanting the maximum expansion from just one slot in the PLUS 1. AP5 contains:- a User port for connecting peripherals such as a mouse, 1 MHz bus allowing Music 5000(E) prommers and various control devices to be added. Tube interface for connecting an Acorn 2nd. processor or even a Master Turbo board (through a 'Co-Pro Adaptor') – & TWO spare ROM sockets (1 high priority). All hardware connections are Acorn compatible thereby allowing many BBC products to be added (remember that some software modification may be necessary for the Electron). So although some expansion options may appear expensive on an Electron you do have upward compatibility.

£58.00 Ex VAT; £68.24 inc VAT

ADVANCED PLUS 1 . . . The plus 1 is the main expansion for the Electron. It provides the Centronics parallel printer, port, joystick interface and 2 cartridge slots into which go ROM cartridges including View, Viewsheet, Pascal, Logo and our own popular range of disc upgrades.

£50.00 excl VAT; £57.50 inc VAT

ADVANCED PLUS 6 . . . a fully buffered 6 ROM expansion module for the Electron user. AP6 is fitted inside the advanced Plus 1 or a modified Acorn Plus 1 (when used with the Acorn Plus 3, 5 ROM sockets are available). All sockets are designed to accept either ROM/EPROMS or RAM chips. A further feature is the optional AP7 upgrade.

"A marvellous piece of design . . . don't hesitate, buy it!"–EU, May '88

£33.00 excl VAT; £37.95 inc VAT

UPGRADE SERVICE for the original Acorn Plus 1 to Advanced Plus 1 and AP6. This will provide all the benefits of AP6 and also includes the printer circuit modification for some modern printers. (AP6 can be fitted to original Plus 1 by users with soldering experience) for upgrade service add £7.00 + VAT to AP6 price ie

£40.00 excl VAT; £46.00 inc VAT

Incl. Mod, Fitting + Testing & Carriage. Send to:
P.R.E.S. Service Department, PO Box 34, Shipley BD17 6DE

ADVANCED ROM ADAPTER 2

An Acorn approved cartridge containing a card with special 'zero' profile sockets that allow you to fit compatible 8k or 16k EPROMS/ROMS. The cartridge is fully enclosed providing complete protection for your ROMS. Simple to use – No switching – complies fully to the Acorn (sideways) Rom filing system.

"The best ROM cartridge is by far the ARA 2...A&B Dec 86

£13.00 excl VAT; £14.95 inc VAT

ADVANCED BATTERY-BACKED RAM

A standard Acorn approved cartridge but containing 32k (2 x 16k) of sideways RAM. The added bonus is the battery-backed feature that holds the RAM contents when the power is switched off! Different ROM images can be loaded into either bank from ROM images previously saved. The banks can also be locked to imitate ROM use. Now it is possible to have View & ViewSheet in one cartridge every time you switch on. Other uses include &E00 ADFS, printer buffer, ROM software development. The use of ABR is simplified by the newly written PRES software utilities which include:- SaveROM, LoadROM, Lock, Unlock, Printer Buffer, Zero and MakeROM a new utility to put your own software from disc or tape into ABR & use the ROM filing system. All software is supplied in ABR with a simple menu to transfer the utilities to your own media. No hardware switching – totally software controlled. Instructions for using supplied software and necessary information for users developing their own applications.

"It's a superb add-on and a must for all serious Electron users. . . Electron User*

£39.00 excl VAT; £44.85 incl VAT

PRES POLICY

1. To provide the best possible service & assistance to users.
2. Supply Acorn based or Acorn compatible products & to enable upward compatibility wherever possible.
3. Provide tested products with special attention to quality of design, components & production.
4. **Only to cash cheques & credit card receipts when we know we can supply the goods ordered.**

DISC INTERFACES (Plus One required)

AP3 INTERFACE: As supplied with AP3 package. A fully Acorn compatible disc interface that will accept any standard 5.25" or 3.5" 80T drive with PSU. It runs Acorn's ADFS (as supplied on Acorn Plus Three, Master 128, Master Compact and now the Archimedes) supplied with A.D.F.S. manual and welcome disc + Utilities and 3 bonus games (please specify 3.5" or 5.25" 80T format). Also provides a spare 16K rom socket.

Price £52.00 ex VAT £59.80 inc VAT

AP4 INTERFACE: A fully Acorn compatible disc interface that will accept any standard 5.25" or 3.5" drive with PSU. It runs the 1770 DFS (as fitted in the BBC 'B' and Master) keeps pace at &E00 – has utilities in rom and provides a spare 16K rom socket (DFS manual included.

Price £60.83 ex VAT £69.95 inc VAT

AP34 INTERFACE: Get the best of both filing systems. Now available from PRES the ultimate interface. Fitted with both Acorn approved filing systems. . . Acorn's current standard ADFS and Acorn 1770 DFS (which can be run at &E00) ADFS and DFS manuals supplied + ADFS welcome disc with utilities.

Price £69.55 ex VAT £79.98 inc VAT

Please state 5.25" or 3.5"

ADVANCED PLUS 2 ROM

We feel this is one of the best, low cost, additions we have produced for the Electron & +1 user, especially for Plus 3, AP3 & ABR users. Now with this easy to fit upgrade you can add:

1. Fix for Tape filing system in Hi-res screen modes.
2. *ROMS – to display all ROMs/ROM images present on the system.
3. *UNPLUG – disable ROM/RAM image.
4. *INSERT – enables or inserts a previously unplugged ROM.
5. *KILL – to totally disable the Plus 1.
6. *LOCK – to lock a sideways RAM bank in ABR, AQR, AP7.
7. *LROMS – to lock all sideways RAM banks found.
8. *UNLOCK – to unlock a sideways RAM bank in ABR, AQR, AP7.
9. *UROMS – to unlock all sideways RAM banks found.
10. *SAVEROM – saves a copy of a ROM image to the current filing system.
11. *LOADRUN – loads a ROM image from the current FS into a RAM bank.
12. *FORMAT – will format an ADFS disc for Plus 3 or AP3.
13. *VERIFY – reads and tests every sector on an ADFS disc.
14. *VFORM – formats and verifies an ADFS disc in one command.
15. *BUILD – creates a text file that can be used by *EXEC (ie !BOOT).
16. *LIST – displays a numbered listing of a text file.
17. *TYPE – displays a file on screen with no line numbers.
18. *DUMP – to view a file's contents on screen.
19. *LANG – selects a default language to be booted on <CTRL-BREAK>
20. *HELP – provides a full 'help' list on all the ROM's commands

STOP PRESS

21. *AQRPAGE– selects the specified page in any AQR present.

Now there is no need to search for your utilities disc every time you want to Format/Verify a disc, Build a !Boot file or Lock/unlock/Load a ROM image into ABR PLUS much more . . . the ideal companion from the company that produces the Acorn Plus 1.

£11.00 ex VAT; £12.65 inc VAT

"The AP2 is the definitive Plus 1 Rom. . . I'm not sure what I'd do without it. . . Like all of PRES'S other products it's been well worth waiting for." EU July '88

PRES ABR SOFTWARE

The new PRES ABR software now available separately containing: SaveROM, LoadROM, Lock, Unlock, Printer Buffer, Zero and MakeROM a new utility to put our own software from disc or tape into ABR & use the ROM filing system. Supplied on 3.5" ADFS or 5.25" DFS disc.

3.5"£9.99 ex VAT; £11.49 inc VAT
5.25"£8.99 ex VAT; £10.34 inc VAT

ADVANCED PLUS 7

An internal battery-backed RAM upgrade for the Advanced Plus 6. TWO 16K pages of Sideways RAM, battery-backed and featuring full write protect facility. Just like ABR but fitted internally & vacating a cartridge slot. This product is compatible with all Acorn BBC/Master & Electron computers.

£39.50 ex VAT; £45.42 inc VAT

**** USER PORT ****

A new low cost unit for those who just require a user port interface. Supplied in a standard size, Acorn approved cartridge, with the standard connector on top. Inside is a spare ROM socket which can also be configured for high priority use such as mouse software.

£19.99 ex VAT; £22.95 inc VAT

ADFS VERSION 1.1
Suitable for existing Plus 3 or A.P.4 users. This new version has the software fixes for Zysyshelp, write protect disable & compaction. Also Winchester code has been replaced with the necessary driving software to handle AQR as a 256k RAM DISC. Please note – ADFS is Acorns adopted standard filing system supplied on the Plus 3, Master 128, Master Compact & now the Archimedes. Supplied on 16k ROM with Welcome disc & utilities. Please state 3.5"/5.25" welcome disk.
£14.95 ex VAT; £17.19 inc VAT
(ADFS manual supplied separately)

ADFS E00
For Electron users with either Plus 3 or A.P.4 and 32k of S/W RAM i.e. ABR. All the benefits of ADFS but without all the loss of RAM! Includes all the software 'fixes' as in version 1.1 as well as the AQR/RAM DISC code and an 'FX' call for managing the new & original ADFS. One of the most frequent questions we are asked: "How do I get back the memory lost on my Plus 3 system?" Answer: PRES ADFS &E00 regains 3.75k leaving page @ &E00 the same as Tape!
ADFS E00 supplied; 3.5" ADFS (manual available separately)
£14.95 ex VAT; £17.19 inc VAT
5.25" ADFS (manual avail. sep.) **£14.00 ex VAT; £16..10 inc VAT**
5.25" DFS (2 discs+ADFS manual) **£19.00 ex VAT; £21.85 inc VAT**
(See Special Package Prices)

AP4 MOD
This converts an AP3 to an AP34 (ie. DFSEOO) supplied as a two chip set, full documentation and fitting instructions.
£21.74 ex VAT. £25.00 inc. VAT

ADVANCED GAMES COMPENDIUMS – ON DISC
With so many of our products providing more 'serious' add-ons for the Elk; we thought it was time to allow easy access to some of the favourite games ON DISC! . . . Three volumes of popular games, previously only available on tape, now 'instantly' loadable from menu on disc. Each volume contains EIGHT menu selectable games. Available on 3.5" ADFS or 5.25" ADFS.

Vol. I	Vol. II	Vol. III
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A clever little beeper

Teach yourself Morse Code with Paul Keddie's useful utility program

THE second program that many people write when they first start Basic programming on their Electron is a Morse Code tutor – the first being a character definer. Over the past five years we have seen dozens of code tutors, but Paul Keddie's is a clear winner.

When you run it you'll be presented with the menu screen. Press 1 to read the instructions and 2 to display the alphabet alongside its Morse equivalent. Pressing 3 takes you to the converter which allows you to convert text into dots and dashes.

You are prompted to input a word which the program then displays letter by letter on the screen. The Morse Code is shown alongside as a series of dots and dashes while it produces the correct sounds via the internal speaker.

Option 4 will print out the codes on the printer and pressing 5 will quit the tutor and return you to Basic.

The program runs in Mode 1 and to enable it to work on ADFS disc systems like the Plus 3 and Pres AP3 which set page to &1D00, a downloader is incorporated into the listing. This means that when the program is run the disc system will be disabled, so remember to save your typing first. Tape users won't experience these problems as there is plenty of memory to run the tutor.

By entering words and carefully listening to each letter you will soon become a quite proficient beeper.

```
  10 REM Morse Code Tutor
  20 REM By Paul Keddie
  30 REM (c) Electron User
  40 IF PAGE>&E00 GOTO 1500
  50 :
  60 MODE 1:VDU 23,1,0;0;0;0;
  70 DIM code$(26)
  80 *FX202,47
  90 *FX4,1
 100 PROCread
 110 PROCbanner
 120 PROCmenu
 130 :
 140 DEF PROCmain
 150 *FX11,0
 160 VDU 17,129,28,2,27,37,9,12,
17,0;17,130,28,3,26,36,10,12,17,0
 170 PRINT TAB(2,1)"The Morse Co
de was invented in"TAB(2,2)"1837
by Samuel Morse."TAB(2,4)"The bes
t  known message of the"TAB(2,5)"
Morse Code is, of course,  the"
 180 PRINT TAB(2,6)"SOS,  an in
ternational signal"TAB(2,7)"of di
stress."TAB(9,9)"... ... ...
"TAB(6,10)"-.- . -.. -.. .. . ...
"TAB(4,11)"... .-. --- ... .-. . .
- --"TAB(2,13);
 190 PROCtype("Enter the word to
 be converted")
 200 *FX15,1
 210 *FX202,47
 220 PRINT TAB(5,15)"=>":COLOUR
2:COLOUR 128
 230 W$=""
 240 REPEAT K%=INKEY0
 250 IF K%>64 AND K%<127 W$=W$+C
HR$K%:SOUND 1,-15,103,1:PRINT TAB
(7,15);SPC(21):PRINT TAB(7,15);W$

 260 IF K%=127 AND LEN W$ W$=LEF
T$(W$,(LEN W$)-1):SOUND1,-15,250,
1:PRINTTAB(7,15);SPC(21):PRINTTAB
(7,15);W$
 270 IF LEN(W$)=21 THEN 310
 280 UNTIL K%=13
 290 SOUND 1,-15,50,2
 300 IF W$="" W$="LAZYBONES"
 310 VDU 17,128,28,0,27,39,9,12,
17,0;17,129,28,4,31,17,9,12,17,0;
17,130,28,5,30,16,10,12,17,0
```

The Morse Code main menu

```
  320 FOR LOOP=1 TO LEN(W$)
  330 M$=code$(ASC(MID$(W$,LOOP,1
))-64)
  340 FOR loop=1 TO LEN(M$)
  350 IF MID$(M$,loop,1)="-" SOUN
D 1,-15,103,4
  360 IF MID$(M$,loop,1)="." SOUN
D 1,-15,103,2
  370 IF MID$(M$,loop,1)=" " SOUN
D 1,0,0,2
  380 SOUND 1,0,0,1
  390 NEXT
  400 PRINT TAB(2)M$;
  410 NEXT
  420 VDU 17,129,28,20,26,37,14,1
2,17,0;17,130,28,21,25,36,15,12,1
7,0
  430 PRINT TAB(1,1)"Please choos
e:"TAB(1,2)"------ ------"TAB(1,4
)"1. Another go."TAB(1,6)"2. Menu
."TAB(1,8)"3. Quit."
  440 *FX15,1
  450 REPEAT A$=GET$
  460 UNTIL INSTR("123",A$)
  470 IF A$="1" VDU 17,128,28,4,3
1,17,9,12,17,0;17,128,28,20,26,37
,14,12,17,0:PROCmain
  480 IF A$="2" VDU 17,128,28,4,3
1,17,9,12,17,0;17,128,28,20,26,37
,14,12,17,0:PROCmenu
  490 IF A$="3" CLG:VDU 22,6:END
  500 :
  510 DEF PROCmenu
  520 VDU 17,129,28,4,25,34,9,12,
17,0;17,130,28,5,24,33,10,12,17,0
  530 PRINT TAB(12,1)"MENU"TAB(12
,2)"----"TAB(1,4)"1. Instructions
."TAB(1,6)"2. The Morse Code Alph
abet."TAB(1,8)"3. Main Program."T
AB(1,10)"4. Print Out."TAB(1,12)"
5. Quit."
  540 VDU 17,129,28,0,31,39,27,12
,17,0;17,130,28,1,30,38,28,12,17,
0
  550 PRINT TAB(8,1);
  560 PROCtype("Please make selec
tion")
  570 *FX15,1
  580 REPEAT A$=GET$
  590 UNTIL INSTR("12345",A$)
  600 IF A$="1" VDU 17,128,28,0,3
1,39,27,12,17,0:PROCinstruc
  610 IF A$="2" VDU 17,128,28,0,3
1,39,27,12,17,0:PROCalpha
  620 IF A$="3" VDU 17,128,28,0,3
1,39,27,12,17,0:PROCmain
  630 IF A$="4" CLS:PRINTTAB(2,1)
;:PROCtype("Switch printer on and
 press SPACE"):REPEAT UNTIL INKEY
(-99):PROCprint
  640 IF A$="5" CLG:END
  650 :
  660 DEF PROCtype(T$)
  670 FOR K=1 TO LEN(T$)
  680 PRINT MID$(T$,K,1)"#"CHR$(8
);
  690 SOUND 1,-1,103,1
  700 PRINT "*"CHR$(8);
  710 SOUND 1,0,100,1
  720 PRINT " "CHR$(8);
  730 NEXT
  740 SOUND 0,0,0,0:ENDPROC
  750 :
  760 DEF PROCread
  770 FOR C=1 TO 26
  780 READ code$(C)
  790 NEXT
  800 ENDPROC
  810 :
  820 DEF PROCprint
  830 VDU2
  840 FOR C=1 TO 26
  850 PRINT ' code$(C)
  860 NEXT
  870 VDU 3,12
  880 GOTO540
  890 :
  900 DATA "(A) .-","(B) -...","(
C) -.-.","(D) -..","(E) .","(F) .
.-."
  910 DATA "(G) --.","(H) ....","
(I) ..","(J) .---","(K) -.-"
  920 DATA "(L) .-..","(M) --","(
N) -.","(O) ---","(P) .--.","(Q)
--.-"
  930 DATA "(R) .-.","(S) ...","(
T) -","(U) ..-","(V) ...-","(W) .
--"
  940 DATA "(X) -..-","(Y) -.--",
"(Z) --.."
  950 :
  960 DEF PROCalpha
  970 VDU 17,129,28,4,25,34,9,12,
17,0;17,130,28,5,24,33,10,12,17,0
  980 FOR c=1 TO 13
  990 PRINT TAB(3,0+C);code$(C);T
AB(17,0+C);code$(13+C)
 1000 NEXT
 1010 VDU 17,129,28,0,31,39,27,12
,17,0;17,130,28,1,30,38,28,12,17,
0
 1020 PRINT TAB(11,1);
 1030 PROCtype("Press any key")
 1040 *FX15,1
 1050 A$=GET$
 1060 VDU 17,128,28,0,31,39,27,12
,17,0
 1070 PROCmenu
 1080 :
 1090 DEF PROCinstruc
 1100 VDU 17,128,28,4,25,34,9,12,
17,0;17,128,26,31,0,6,17,2
 1110 PRINT TAB(1,10)"This progra
m will help you learn the"TAB(1
,11)"Morse Code."
 1120 PRINT TAB(1,13)"The compute
r will ask you to type in"TAB(1
,14)"a word of not more than 2
1 letters."
 1130 PRINT TAB(1,15)"When you ha
ve typed in your word press <RET
URN>."TAB(1,18)"The computer wil
l then display each"TAB(1,19)"i
ndividual letter of your word a
long"TAB(1,20)"with the code."
 1140 PRINT TAB(1,22)"IMPORTANT :
 Please make sure that the caps
"TAB(6,23)"light is on."
 1150 VDU 17,129,28,0,31,39,26,12
,17,0;17,130,28,1,30,38,27,12,17,
0
 1160 PRINT TAB(2,1);
 1170 PROCtype("Please select:-
1. Menu.")
 1180 PRINT TAB(19,2);
 1190 PROCtype("2. Main Program.")
 1200 *FX15,1
 1210 REPEAT A$=GET$
 1220 UNTIL INSTR("12",A$)
 1230 IF A$="1" VDU 17,128,28,0,3
1,39,9,12,17,0:PROCmenu
 1240 IF A$="2" VDU 17,128,28,0,3
1,39,9,12,17,0:PROCmain
 1250 :
 1260 DEF PROCbanner
 1270 PRINT TAB(8,10)"Please wait
 15 seconds ..."
 1280 TIME=0:REPEATUNTILTIME=150:
CLS
 1290 VDU 19,1,0;0;19,2,0;0;19,3,
0;0;17,129,28,0,7,39,0,12,17,0;17
,130,28,1,6,38,1,12,17,0
 1300 PROCtext(0,3,"M O R S E  C
O D E  C O N V E R T O R",50,970)
 1310 PROCtext(0,3,"- - - - - - -
- - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
- - - - - - - - - - -
```

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MICRO MESSAGES

Machine code conversion

I OWN an Electron and Plus 1 and have subscribed to Electron User *for four years. I think it is an excellent magazine and I especially like Micro Messages, Arcade Corner and 10 Liners.*

I think the magazine could be improved by awarding small prizes to those readers who send good letters, cheats, programs and so on. I like the new format of the magazine and the new style of listings.

Anyway, enough of that. Is it possible to enter character definitions in hexadecimal or binary?

Also, is it possible to make a program that converts machine code to Basic or vice-versa as sometimes one version of a program is shorter and therefore easier to type in than the other. An example of this is the Kaleidoscope program that you published in your February 1987 issue.

Are any of the following games available for the Electron: Boffin, Boffin 2, Impossible Mission, Impossible Mission 2, Jet Set Willy 1, Beach Head 2?

I recently bought a Slogger Expansion Rom 2.0 and joystick interface and noticed that the expansion rom had the command RSAVE to save rom images to disc or tape. Does this work with software cartridges?

What do you type in to use this command, as the manual says:

```
*RSAVE R(id) (filename)
```

which does not work. Are the brackets meant to be there or is something else wrong?

For anyone having trouble with Quest, try pressing R, E, I, N, C, A, T simulataneously. This gives four reincarnations. In Codename: Droid, does anyone know how to get the jet-pack on level 3, sector 2? – **Alexander Bowyer, Hexham, Northumberland.**

● Character definitions can be entered in hexadecimal by preceding each number with an ampersand. It is possible to write a Basic compiler that turns a Basic program into machine code, but no one has yet written one.

Boffin and Impossible Mission are available, but the other games aren't.

RSAVE can be used to save the roms in cartridges and the syntax of the command is the same. The brackets aren't required and to save rom seven with the filename FRED you would enter:

```
*RSAVE R7 FRED
```

In the April and May 1988 issues of *Electron User* we published complete maps of Codename: Droid. These may help you find the jet pack.

Who Kung-Fu?

COULD you tell me the name of the software house that produced the game called Yie-Ar Kung-Fu?. I have looked through numerous magazines which advertise games, but to no avail. – **Graham Bonner, Cambridge.**

● The game was written by Pete Johnson and was released by Imagine.

Free tape wanted

YOUR magazine is brill, but I have a complaint. Many other computer magazines, such as Crash and Your Sinclair, give a lot of demonstration games away with the magazine on the front cover. Could you do it once or twice a year or perhaps give something else away for free?

Also, does Roland Waddilove work for Alternative Software? – **Ross Adams, Shirwell, Devon.**

● If you take out a yearly subscription to *Electron User* you will receive a free tape every month. This features many games and utilities from the magazine.

It has all the monthly listings on it and we will certainly consider putting some demonstrations on it, too, if the opportunity arises.

As for Roland, we woke him up to ask him about his relationship with Alternative and he assures us that he does not have a part time job there. Alternative has bought *Electron User's* 10 of the Best games and is releasing them on its budget label.

Many of the titles were written by Roland and are taking the Gallup software chart by storm.

Scoring on the screen

AS a keen fan of sport simulations I am wondering if there are any other football simulation games apart from Goal! I have played Match Day 1 on the BBC Micro and Match Day 2 on the Commodore 64 and think both are excellent. Are they to be released on the Electron?

I watch ice hockey quite often. Are there any other games other than Bug Byte's Ice Hockey, which I think is a good attempt at portraying the game? – **Jason Turner, Willerby, Hull.**

● A number of soccer simulations have been released over the last few years, including Brian Clough's Football Fortunes, League Challenge, Football Manager, Footballer of the Year, Supreme Team, Soccer Supremo and Mexico '86. Some may be difficult to find so shop around. There are no plans at the moment to convert Match Day.

We haven't seen any ice hockey simulations on the Electron. Can any readers help?

Taking a break

I READ with interest the letter from Mr Buckler in your March issue on !Boot startup files for View. I use a similar file on all my View discs.

I would imagine that the reason he wants to disable the Break key is that if you are using Mode 3 to get 80 columns on the Edit screen and accidentally hit the Break key not only does the computer revert to 40 column Mode 6, but your chosen text and screen colours become the default white on black.

I found this extremely irritating until I hit on the idea of adding the following line to my !Boot files:

```
*KEY10 MODE 3|M|S13000
```

If Break is pressed accidentally, Mode 3 is reselected and the default colours are changed back to my chosen ones of yellow on black. – **Michael Cowgill, Retford.**

Linking the daisies

I WOULD like to connect my Amstrad daisywheel printer to my Electron Plus 1. Is this possible? – **Cameron Francey, Dumfries, Scotland.**

● All you need is a printer lead. The Electron will work perfectly well with either a dot matrix or daisywheel printer.

Time share printer

I HAVE an Electron with a Slogger Rombox Plus and an Advanced Plus 3. My father uses an OKI Microline 192 Plus printer at work during the week. It is not used at weekends and he has told me that I can use it if there are no modifications needed.

It has two ports, the RS232 which is the

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◀ From Page 39

one used in its present roll and the Centronics port. Can you tell me if it will work? – **James Edwards, Bingham, Nottingham.**

● The Rombox Plus has a Centronics parallel port at the rear of its case. You should be able to connect this to the Microline's via a standard printer cable.

Electronic building

I AM writing in the hope that you can help me trace a program which was, I believe, an early listing in your magazine. The program was called House and involved systematic building of a house using simple presses of the spacebar. It was ideal for very young children. – **Christopher Price, Merton Court School, Sidcup, Kent.**

● This program was originally published in The Micro User Educational Special. Unfortunately, it is no longer available as it is out of print and we haven't got any more back issues.

However, it is still available on tape along with many other good educational programs in the special Fun School package which is available for £9.95. To obtain a copy use the order form on Page 51.

Keys to Frak! designer

A COUPLE of years ago I bought the game Frak! which I still find very addictive. Unfortunately I have lost my copy of the instructions and have racked my brains trying to remember how to access the screen designer.

I wrote to Aardvark Software a couple of months ago asking for a new set of instructions, but still have not received an answer. Can you help? – **David Morland, Glasgow.**

● We published the screen designer keys in the July 1988 issue of *Electron User.*

Trying to strike lucky

PLEASE can you tell me if the games Empire Strikes Back and The Living Daylights are available for the Electron. I have scanned up and down the pages of Electron User *but the only mention I can find is for the BBC Micro.* – **Owen Lewis, Bridgend.**

● Unfortunately these games were not converted to the Electron. The main problem is one of speed. A Turbo version may be possible, but sales may not justify the work and expense involved.

All programs printed in this issue are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the very rare occasions that mistakes may occur corrections will be published as a matter of urgency. Should you encounter error messages when you type in a program they will almost certainly be the result of your own typing mistakes.

Unfortunately we can no longer answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the mail pages.

Behind is a problem

I HAVE been reading Roland Waddilove's excellent series on sprite graphics and have appreciated it very much. I am now in the process of designing my own game and although I understand the sections about foreground and background printing I cannot work out how you go about printing a sprite in front of some things yet behind others.

For example, in Spycat the character walks in front of the background, but behind the collectable objects. I would be very grateful if you would tell me the principal of the code allowing you to do this. – **Matthew Chilton, Cumnor, Oxford.**

● The technique is to use the foreground print routine, printing the sprites in a set order and erasing them in reverse order when they are to be moved.

For instance, if you wanted Spycat to walk in front of a building but behind a dustbin on the pavement, Spycat is first printed on top of the background – the building – using the foreground print routine, then the dustbin is drawn on top of Spycat using the same routine. Spycat then looks as if he is between the dustbin and building.

When Spycat moves the dustbin is first erased, Spycat is reprinted at the new position and the dustbin replaced. Again, only the foreground print routine is used. In this way Spycat appears to walk behind the dustbin but in front of the building.

Electron on video

THE other day I was having a good look at my Electron and noticed a video socket. Please could you tell me what to use it for and where I can obtain a lead? – **B. James, Cinderford, Glos.**

● Any Acorn dealer – such as Watford Electronics – should be able to supply a suitable lead. It provides a monochrome output which can be used with a monochrome monitor.

Fishing for assistance

I AM having problems loading the Fishing program which was published in the June 1986 issue of Electron User. *When trying to get the program to load the counter starts at 01. When the program has loaded it gives a* Bad program *message.*

At first I thought the tape was at fault, but all the other programs on it work perfectly. Is there any way that the game can be resaved?

I would also like to congratulate Mithras Software on its swift service. After waiting two months for The Nine Dancers from another software house I received the game in just three days. – **Craig Campbell, Stirling, Scotland.**

● It sounds as if you have a tape fault at the start of the Fishing program. You may be able to salvage the listing by loading what you can and typing in again the parts that are missing or corrupted.

Assuming PAGE is at &E00, enter:

```
*OPT1,0
*LOAD "" E00
OLD
!TOP=&FFOD
```

This will recover as much as possible from the tape.

Loading pictures

I WOULD like to know how to load pictures from cassette section by section in the same way that they do on the Planets and Island demonstrations on the introductory cassette.

Is a digitiser available for the Electron? If so where can I obtain it and for how much? – **Gareth Jayne, Gloucester.**

● The technique used to load the pictures section by section is to open the file with OPEN and to read it one byte at a time using BGET. Each byte is poked into the screen memory as it is read.

A digitiser isn't available for the Electron.

Moving solution

COULD you please help by answering a few of my questions? How do you program keys such as X, Y, A and Z on the Electron so they move an object? I can program the cursor keys, but not the letter keys.

Can I find out how much memory is left in the computer when I have got a program in it? Could you tell me how to turn the sound on and off?

Is it possible to put a time limit in a pro-

gram at the point where there are inputs and the computer waits for a key press?

*Finally, what does the command *T. do? I've seen it in many programs. Thanks for the help.* – **M. Stacey, Derbyshire.**

● Using one key combination is exactly the same as any other. Here is a short example program that moves an asterisk around the screen under the control of the A, Z, N and M keys:

```
 10 REM Use A,Z,N & M
 20 MODE 4
 30 VDU 23,1,0;0;0;0;
 40 X%=20 : Y%=15
 50 REPEAT
 60 PRINT TAB(X%,Y%)"*";
 70 A%=X% : B%=Y%
 80 k$=INKEY$0
 90 IF k$="A" THEN Y%=Y%-1
100 IF k$="Z" THEN Y%=Y%+1
110 IF k$="N" THEN X%=X%-1
120 IF k$="M" THEN X%=X%+1
130 PRINT TAB(A%,B%)" "
140 UNTIL FALSE
```

The amount of memory left once a program has been loaded can be found with:

```
PRINT HIMEM-TOP
```

The sound can be turned off with *FX210,1 while *FX210,0 turns it back on again.

You can wait for a keypress within a time limit using INKEY$ followed by the time to wait in hundredths of a second like:

```
10 MODE 6
20 PRINT "
30 PRINT "Press a key..."
40 k$=INKEY$200
50 IF k$="" PRINT "Too slow!" ELSE
PRINT "You pressed ";k$
60 END
```

The *T. command is used to select the tape filing system. Disc drive owners will use it when loading programs from cassette.

Expanding into discs

I AM a proud owner of a 32k Electron. I have a considerable number of tape-based games, but now I would like to expand into discs and word processing with a printer.

Is this possible, and could you tell me where I might be able to find a printer and disc drive? No one in my area stocks Electron equipment. – **Peter Grove, Telford, Shropshire.**

● Pres can provide you with all you'll need. The first add-on to buy is a Plus I as this is essential for both a printer and disc drive. Then you have the choice of printer and disc filing systems.

A good economically priced printer is the Panasonic KX-P1081. There's not much to choose between the ADFS and DFS filing systems, so we'll leave that decision to you. A 5.25in drive is best with DFS and 3.5in drive with ADFS.

Journey expedited

I am trying to get somewhere with Superior Software's excellent game, Exile. It is a true programming marvel, although I have seen very little of the game because I am stuck almost at the start.

My current position is just under the surface of the planet in the huge central cavern. I cannot get any further into the cave system than this and have been unable to get anywhere for several weeks, if not months.

Can anyone help before I cause some serious damage to either myself or my Electron because of the frustration?

I would like to add that I like the new format, and the quality of listings, especially the utilities, is extremely high. I have been reading Electron User *for almost three years and it has been a constant source of help and reference. Keep up the good work.* – **Stewart Maguire, Midlothian, Scotland.**

● You'll need to blast your way into the underground cave system with a grenade. From the start fly as far to the right as you can and land on the ground. Walk left until you find the grenade which should be lying next to a bush. Pick it up.

Go the large cavern under the spaceship and throw the grenade to the floor, remembering to keep a safe distance when it goes off. You can then proceed through the hole you've made.

Rugby conversion

I HAVE a copy of the game Soccer Boss and think it's great. However, I am also a keen rugby league supporter and would like to change the program to make it into a Rugby League Boss. Please could you tell me which lines I would have to change to carry out the task?

The data should be two divisions consisting of 18 teams with 25 players and a transfer list of 20. The most that one team can score in one game is 35. And don't forget that in Rugby League you get two points for a win and not three as in soccer. – **A. Jennings, Wakefield, West Yorkshire.**

● Unfortunately, it is not possible to convert Soccer Boss into a Rugby Boss simulator without a great deal of work – far too much to list here. Do any readers know of a commercial program on the market?

Electron to be upgraded?

I WOULD like to praise Slogger for its reliable hardware and friendly advice when I asked which was the best way to upgrade my Electron.

I would like to recommend Jaffa Systems' excellent Mode 7 simulation rom. It is a bargain at £25 and gives you full Mode 7 capabilities. If you use it with Slogger's Master Ram Board you can run all BBC Micro text adventures such as Lord of the Rings without any problems.

It has come to my notice that the Electron is no longer for sale. This is because the large stocks that were built up have come to an end. Maybe if enough readers wrote, Pres would try to buy the rights to the machine from Acorn and produce more Electrons.

More memory, speed and so on, perhaps even more sound channels, would bring the Electron up to the standard of other micros.

I have compared Electron User *to other computer magazines and it is clearer, more colourful and not so games-orientated. It has a good balance and variety. Keep up the good work.* – **Andrew Gwynne, Legbourne, Lincolnshire.**

Knockout blow

I RECENTLY bought a copy of The Way of the Exploding Fist. I was very excited as I had searched high and low to find it. When I got home I found that it was a version for a BBC Micro and not an Electron.

I tried it anyway but as I had expected it did not work. I cannot take it back to the place where I bought it from as I have lost the receipt. What do you suggest? – **Dean Stevens, Tipton, West Midlands.**

● Try contacting the software company directly, explaining that you bought the BBC Micro game by mistake and ask if you can exchange it for an Electron version.

Trouble with Superman

I RECENTLY bought Superman – Man of Steel for my Electron. Although I like the game very much it became a nuisance having to rewind the tape to the file Start at the end of a game. Is there any way of avoiding this?

Could you please tell me how to get rid of the spaceship on level one, because I have read the instructions but I can't see anything about this? – **Andrew Woodward, Cawood, North Yorkshire.**

● You can't alter the way Superman loads from tape, and this does spoil what is otherwise an excellent game. The spaceship is a concussion cannon and can be punched or hit with your heat vision. Several hits may be required to destroy it.

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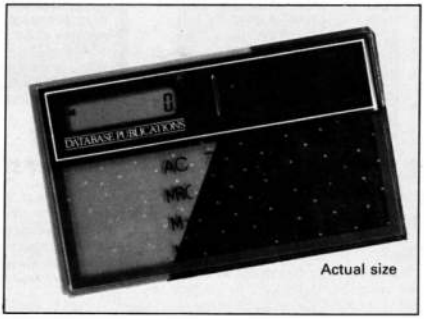

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```
 700 .gotall
 710 LDA num
 720 CMP #2
 730 BCS err
 740 INY
 750 LDA #0:STA fill
 760 LDA (&F2),Y
 770 CMP #ASC"1"
 780 BNE circle
 790 LDA #1:STA fill
 800 .circle
 810 LDA co+6:STA xy
 820 LDA co+7:STA xy+1
 830 LDA #0:STA xy+3:STA xy+4
 840 JSR move
 850 LDA #19:STA te
 860 .cirlo
 870 LDY te
 880 LDA sinX+5,Y
 890 LDX #0
 900 JSR mult
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1010 LDA co+6:STA rad+1
1020 LDA co+7:STA rad+2
1030 LDA #0:STA xy,X:STA xy+1,X:
STA xy+2,X
1040 STA rad+3
1050 .m1
1060 LSR rad
1070 BCC noadd
1080 CLC
1090 LDA xy,X:ADC rad+1:STA xy,X
1100 LDA xy+1,X:ADC rad+2:STA xy
+1,X
1110 LDA xy+2,X:ADC rad+3:STA xy
+2,X
1120 .noadd
1130 ASL rad+1:ROL rad+2:ROL rad
+3
1140 LDA rad
1150 BNE m1
1160 LDY #5
1170 .div
1180 LSR xy+2,X:ROR xy+1,X:ROR x
y,X
1190 DEY
1200 BNE div
1210 SEC
1220 LDA xy,X:SBC co+6:STA xy,X
1230 LDA xy+1,X:SBC co+7:STA xy+
1,X
1240 RTS
1250 .draw
1260 LDA #25:JSR &FFEE
1270 LDA fill
1280 BNE tri
1290 LDA #5
1300 .dr1
1310 JSR &FFEE
1320 LDX #0
1330 .dr2
1340 CLC
1350 LDA co,X:ADC xy,X
1360 PHP:JSR &FFEE:PLP
1370 LDA co+1,X:ADC xy+1,X
1380 JSR &FFEE
1390 INX:INX:INX
1400 CPX #6
1410 BNE dr2
1420 RTS
1430 .move
1440 LDA #25:JSR &FFEE
1450 LDA #4
1460 BNE dr1
1470 .tri
1480 LDA #4:JSR &FFEE
1490 LDA co:JSR &FFEE
1500 LDA co+1:JSR &FFEE
1510 LDA co+3:JSR &FFEE
1520 LDA co+4:JSR &FFEE
1530 LDA #25:JSR &FFEE
1540 LDA #85
1550 BNE dr1
1560
1570 .co EQUD 0:EQUD 0
1580 .fill EQUB 0
1590 .num EQUB 0
1600 .te EQUB 0
1610 .xy EQUD 0:EQUW 0
1620 .rad EQUD 0
1630 .old EQUW 0
1640 .sinX
1650 ]
1660 FOR J%=25 TO 1 STEP -1
1670 ?P%=INT(COSRAD(J%*18)*32+32
.5)
1680 P%=P%+1
1690 NEXT
1700 NEXT
1710 CALL setX
1720
1730 MODE 4
1740 A%=RND(-TIME)
1750 TIME=0
1760 *CIRCLE640,512,300
1770 PRINT ' TIME
1780 X%=640
1790 Y=512
1800 TIME=0
1810 *CIRCLEX%,Y,1000/6,1
1820 PRINT ' TIME
1830 FOR I%=0 TO 5000
1840 NEXT
1850 MODE 2
1860 FOR I%=1 TO 15
1870 GCOL 0,I%
1880 OSCLI"*CIRCLE"+"RND(1000),R
ND(1000),RND(400),1"
1890 NEXT
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